

Adolescent Eating Disorder Risk and the Social Online World: An Update



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KEYWORDS

• Proeating disorder • Eating disorder • Traditional media • Social media

The role of traditional media (television and magazines) in creating eating disorder risk has long been a topic of discussion and research, but the proliferation of social media and rapid increase in the use of the Internet by adolescents generates new dynamics and new risks for the development and maintenance of eating disorders. Recent research describes the relationship between Internet and social media use and eating disorders risk, with the greatest associations found among youth with high levels of engagement and investment in photo-based activities and platforms. Here, we review different types of online content and how they are relevant to eating disorders and consider the theoretical frameworks predicting relationships between Internet and social media and eating disorders, before examining the empirical evidence for the risks posed by the online content in the development and maintenance of eating disorders. We describe proeating disorder content specifically and examine the research related to it; we then consider the implications of such content, highlight directions for future research, and discuss possible prevention and intervention strategies.

Both traditional media, notably print and television, and more contemporary forms of media, such as social media, have been identified as important sources of sociocultural appearance pressures. It has been posited that they contribute to the detrimental effects on body image and related dimensions of exposure to unrealistic and unrepresentative body types.¹ The pressure to achieve such unrealistic ideals is increased by the fact that the bodies portrayed in the media and on social media are highly unrepresentative of the general population, and accompanied by a discourse that exaggerates the extent to which body weight and shape are controllable through diet and exercise. The pressure is further exacerbated by a food environment that is not supportive of internally regulated eating patterns.² The reciprocal relationships between

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traditional media use, particularly print and television, and eating disorder risk have been well documented over the past 2 decades.¹ Given that contemporary youth primarily engage with nontraditional forms of media such as social media and the Internet, the association with the use of these newer forms of media and eating disorder risk warrants further exploration.³

The Internet is more accessible than ever, with 95% of teens owning or having access to a smartphone.⁴ Indeed, 13 to 17 years old are spending more time online than ever before, with 45% endorsing that they use the Internet “almost constantly,” and another 44% who report using it “several times a day.” Social media platforms are also extremely popular with young people, with high percentages reporting the use of sites such as YouTube (85%), Instagram (72%), Snapchat (69%), and Facebook (51%).⁴ Among adults, 18 to 29 years old are the highest Internet and social media users, with up to 84% using a social network site.⁵ Frequent engagement with social media is also common among this age group, with 71% of Snapchat and 73% of Twitter users reporting daily use of the platform. In response to this increasing use, an emerging body of literature has begun to explore the relationship between Internet and social media use and eating disorder risk.

GENERAL INTERNET AND SOCIAL MEDIA USE AND EATING DISORDER RISK

Internet and Social Media in the Context of Eating Disorders

Several theoretic frameworks have been used to ground investigations of the relationship between sociocultural influences such as social media and Internet and eating disorders, including sociocultural theory, social learning theory, self-objectification theory, social identity theory, and uses and gratifications theory.⁶ These theories focus on examining the ways that online and social media serve to increase the exposure to harmful appearance ideals, reinforce the centrality and importance of appearance, and model unhealthy appearance-altering behaviors and practices. Social identity theory in particular highlights how appearance and/or eating-related behaviors can be a condition for group membership, which may serve to promote eating disorders.

Online forms of media, including social media, have several attributes that make them particularly relevant to eating disorders (**Box 1**); specifically, being highly visual, targeted for specific users, highly interactive, and allowing for access to higher numbers of more specific social groups. The first attribute is their highly visual nature. The vast majority of online content is comprised of images rather than text, which

Box 1

Internet and Social Media Characteristics Relevant to Eating Disorders

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- Highly visual: Little text, mostly images, with some of the most-popular applications being entirely photo-based.
- Carefully selected, curated, and editing self-presentations that emulate mainstream appearance ideals and values.
- Blurring of the distinction between commercially generated and user-generated content with intentions to increase social capital.
- Machine learning: Content tailored to each user based on previous online activity and interest. Capacity to become an increasing appearance and diet-saturated environment.
- Interactive medium that combines media influences and peer feedback.
- Capacity to bring together individuals with marginal interests and facilitate the normalization behaviors such as ED symptoms.
- Lack of moderation and supervision.
- Strong presence of commercial interests including the diet, beauty, and fitness industries.

makes it saturated in appearance-related content. Furthermore, youth may use types of social media that are particularly picture-oriented and that encourage them to spend time curating the images of themselves that appear online and examining images of their peers or celebrities. In addition, on social media, there may be a progressive blurring of the distinction between commercially generated and user-generated content. When products are presented by influencers, it may be difficult for young adolescents to identify the for-profit intent of the content. The second attribute of online media that makes it particularly relevant to eating disorders is the capacity to tailor itself to a person's interests, building on previous content views and search histories. Targeted advertising and targeted presentation of materials can lead to an online environment that becomes increasingly person-specific the more time is spent online, likened to an "echo chamber." For example, a large number of websites will have advertisements that are selectively produced based on a person's past search history; someone who has looked for dieting or weight loss-related content will be more likely to view advertisements for weight-loss products.⁷ Relatedly, a content analysis of advertisements on popular websites targeting teenagers highlighted the high proportion of cosmetic and beauty products being promoted.⁸ The third aspect of online media and its relevance to eating disorder is the interactive nature of the online world. Peer responses to posts, which can include teasing, are particularly salient on social media; one of the main motivations behind posting is to garner a positive response from others, often regarding appearance. An additional attribute of online media to consider as it relates to eating disorders is the opportunity for access to a wider variety of social groups than the offline world, particularly for youth. The Internet provides a space for groups with attitudes and opinions that are on the more extreme ends of the spectrum. One example of this is proeating disorder communities, which will be discussed in greater detail later in discussion.

Two of the broader characteristics of the Internet and social media that are also relevant particularly to those with eating and shape and weight concerns are the lack of oversight and moderation of Internet content, as well as its principal use for commercial purposes. One illustration of the consequences of this is the proliferation of weight loss products, apps, and other methods being sold on the Internet. Most of these products or apps are not empirically based or supported by research^{9,10} and, in some cases, may even cause harm. Individuals at risk of eating disorders may not benefit from apps promoting specific behaviors such as calorie counting.

Given that the Internet and social media can theoretically be reinforcing to the development and maintenance of eating disorders, the relationship between eating disorders and Internet and social media has received increased research attention. Later in discussion, we provide a review of the empirical studies examining this relationship. Overall, the literature provides support for such a relationship with small to moderate effect sizes, depending on risk profile and type of use. It is important to remember, however, that social media use occurs in addition to exposure to traditional media and its detrimental effects on body image.

Empirical Evidence

A growing number of correlational and experimental studies, in addition to a smaller number of longitudinal studies, have provided support for the idea that there is an association between Internet use and higher levels of disordered eating behaviors and symptoms. Earlier studies focused on examining the relationship between general Internet use and eating disorder symptoms, and provided evidence for this association in samples of adults^{11,12} undergraduates,¹³ and adolescents.^{14–16} Furthermore, in one of the few existing longitudinal studies, Facebook use was a prospective

predictor of increased eating disorder symptoms.¹⁶ Although the directionality of these relationships remains unclear, evidence for the presence of an association is growing.

More recently, it has emerged that using photo-based online platforms, in particular social media platforms that are highly visual such as Instagram or TikTok, is most strongly related to eating disorder risk factors.^{17,18} Meta-analytic findings have highlighted that while the overall magnitude of the relationship between social media use and body image outcomes was small, larger effects were found in appearance-related types of social media as well as among younger groups.¹⁷ In addition to the use of photo-based platforms versus more general ones, the level of personal and emotional investment in their self-images has been shown to be associated with eating disorder risk. Thus, for example, among female adolescents, those who spent more time editing their images for social media reported higher levels of body dissatisfaction and dieting.¹⁹ Similarly, among a mixed-gender group of adolescents, self-photo investment and manipulation were associated with self-reported eating disorder symptoms.²⁰

Thus, involvement with photo-related activities on the Internet seems to be particularly related to eating disorder risk. Although the mechanisms accounting for this still warrant further investigation, emerging evidence points to the role of appearance comparisons.²¹ In addition, feedback received from peers on social media may play an important role. It has been shown, for example, that undergraduates who received negative feedback on their online profiles reported higher levels of eating disorder pathology.²² However, positive feedback related to weight loss or extreme weight loss behaviors may also have harmful consequences. In addition, among adolescent girls, concerns related to peer feedback on selfies were associated with higher body image concerns and depressive symptoms.²³ Thus, concerns regarding anticipated feedback, and well as receiving negative feedback on social media, may be associated with increased eating disorder symptoms.

In sum, greater Internet and social media use, particularly photo-based applications use, had been shown to be associated with eating disorder behaviors and concerns.

HIGH-RISK GROUPS AND EATING DISORDER-SPECIFIC CONTENT

In addition to examining the relationship between Internet and social media use and eating disorder risk among youth broadly, researchers have sought to understand whether those with elevated concerns, existing eating disorders, or who are in recovery are differently affected by online and social media content. In addition, the impact of online and social media content specific to eating disorders, and how it is related to the eating disorder outcomes, has also been explored.

Higher Risk Groups

A small body of research has examined how individuals at high risk for eating disorders, or with a current or past diagnosis, may engage with or be impacted by online and social media content. For example, among young women with eating disorder symptoms in the clinical range, taking selfies but not posting them revealed an association with higher levels of eating disorder symptomatology, leading the authors to propose that such behaviors may serve as a form of body checking.²⁴ In addition, among young women in recovery from an eating disorder, most of whom had experienced an onset of the disorder at age 16 or younger, social media and selfie behaviors may have many layers of meaning and may be experienced in both harmful and helpful ways in the recovery process.²⁵

Diet Culture-Related Content

As mentioned above, much of the content on Internet is motivated by commercial interests, promoting specific individuals, brands, services, or products. To date, little research has investigated how targeted advertising to individuals with existing body image and eating concerns might maintain or exacerbate eating disorder symptoms. Recent research has provided initial evidence specifically platforms and applications designed to focus on weight, eating behaviors, and exercise may indeed be unhelpful for some individuals.²⁶ Specifically, among college students who reported using fitness tracking applications, calorie counting, and fitness tracking were associated with eating disorder behaviors.²⁷ To date, however, most of this research is correlational such that it is unclear whether these applications cause or maintain behaviors and concerns, or whether their association with higher levels of eating disorder behaviors is due to them being more appealing to those for whom these concerns are already in place. Similarly, little work has yet been conducted on the marketing of diet products via influencers, that is, individuals with large numbers of followers who derive financial compensation from feature products. However, the existing research shows that influencers market to children through a variety of interactive platforms such as TikTok or Instagram.²⁸ Examining how this may affect the consumption of dangerous dieting products or promote eating disorder behaviors in youth is an important area of future research.

Proeating Disorder Content

As described above, one of the ways for which the Internet is relevant to eating disorders is through the coming together of individuals with beliefs that only small subsets of the population hold. One such example is proeating disorder content and communities that use the Internet as a means of expressing their belief in the fact that eating disorders are a life choice as opposed to a form of mental illness, and seek to support individuals in the maintenance and often concealment of their eating disorder.²⁹ The typical content includes pictures of very thin individuals, “thinspirations” (sometimes digitally modified so as to appear even more emaciated).³⁰ They also frequently present advice or “tips” for maintaining disordered eating symptomatology, including extremely unhealthy weight-loss methods or techniques for concealing symptoms from family and friends.³¹ Furthermore, they often include some means of interactive communication (noticeboard, blog, or instant messaging) through which members communicate and provide each other with encouragement and support. Content analyses of the interactions on proeating disorder websites have highlighted the importance of shared deception and concealment for fear of stigma or imposed treatment, and the way in which this reinforces the separation between the group of members and the outside world.³² In recent years, “thinspiration” content has become more frequent on social media and has been accompanied by a newer form of content termed “fitspiration.” Both of these types of content have been shown to contain messages aligned with the beliefs and behaviors underlying eating disorders including the pursuit of unattainable appearance ideals, the promotion of dietary restraint and driven exercise, and the portrayal of extreme thinness.^{33,34}

As might be expected, a small body of research has provided support for the association between the use of proeating disorder websites and eating disorder symptoms.^{35,36} For example, in Schroeder³⁶ interviews with females undergoing eating disorder treatment, participants reported that the tips and tricks on pro-ED websites had worsened their eating disorder symptoms by prompting feelings of being “triggered” to act on eating disorder-related urges (eg, obsessions about nutritional

information) and by teaching inappropriate, hazardous compensatory behaviors. In addition, a systematic review and meta-analysis of the findings of experimental studies investigating the effects of exposure to proeating disorder content found a consistent small to moderate size effect on eating disorder symptoms. Thus, evidence points to the fact that such websites and online content is harmful and may constitute a serious barrier to treatment.³⁷

Ironically, although these proeating disorder sites focus on maintaining and promoting eating disorder symptomatology, many studies have found that a desire for social support was one of the main motivations for individuals to participate in these online communities.^{29,38} Individuals suffering from eating disorders are known to experience a lack of social support in their interpersonal environment, and report shame and stigma.^{27,39,40} The Internet may provide a space whereby their behaviors and attitudes will be received without judgment and whereby they can encounter others with similar experiences.

Given the evidence for the harmfulness of proeating disorder online content, efforts to limit the presence of such content have increased. Social media platforms such as Pinterest and Tumblr have banned such groups from forming, and legislation has emerged banning proeating disorder websites in Europe.³⁷ Professional organizations such as ANAD (Anorexia Nervosa and Associated Disorders) have been involved in advocating for the removal of proeating disorder online content despite challenges in monitoring the online space.

Regarding thinspiration and fitspiration content, a growing body of research has documented an association between viewing such content and eating disorder risk and symptoms,⁴¹ as well as higher levels of eating disorder behaviors among those who post such content.⁴² Although most of this research to date has been conducted among young adults, it is likely that these effects may also occur among younger groups.

Prorecovery Information and Support Networks

Although the Internet does allow for individuals endorsing proeating disorder positions to come together, it also facilitates the creation of support groups. Several online prorecovery groups for eating disorders do exist and have been shown to provide both information and emotional support,⁴³ as well as informing our understanding of the recovery process.⁴⁴ Furthermore, online groups may have flexibility in ways that face-to-face groups do not, such as being available late at night, and may fill an important gap in available resources for individuals not able to access in-person groups.⁴³ The creation of more supportive online content around treatment seeking is an important need, and clinicians should investigate innovative ways of using the Internet as a means of providing outreach and support.

The Internet also serves as a means of providing access to information and resources regarding eating disorders. For example, using the Internet has been shown to be a successful means of disseminating mental health first aid for eating disorders.⁴⁵ Similarly, the Reach out And Recover website provides a useful screening tool for parents or friends who are concerned about a loved one's eating behaviors. In addition, it provides a print-out summary and recommendations for referral that can be provided to a general practitioner (<http://www.reachoutandrecover.com.au>). Clinicians should investigate their client's use of Internet and social media, and be able to direct them and their families to accurate and helpful online resources.

RESOURCES AND FUTURE DIRECTIONS

The evidence for the ways in which the Internet and social media may serve to promote and maintain eating disorder pathology is increasing. For some individuals, it

Box 2**Social Media and Internet Use: Key findings and Practice Directions****Key Findings**

- Greater Internet and social media use, particularly photo-based activities and applications, have been shown to be associated with eating disorder behaviors and risk factors.
- Individuals who are most invested in their online self-presentation, and younger adolescents, may be most vulnerable.
- Peer feedback and social comparison are emerging as important mechanisms accounting for these relationships.
- Proeating disorder websites advocate for eating disorders as a lifestyle rather than a disorder. More common “thinspiration” content also conveys harmful content promoting food rules and weight loss that are associated with eating disorders.
- Exposure to proeating disorder websites has been shown to be detrimental and increase eating disorder symptoms.
- Prorecovery content is more rare.

Practice directions & recommendations

- Clients' Internet and social media use should be taken into account as an influence for the recovery or maintenance of eating disorder symptoms.
- Clinicians should investigate innovative ways of using the Internet as a means of providing outreach and support.
- Clinicians should learn to direct clients and their families to accurate and helpful online resources.
- Clinicians should encourage clients to consider their relationship to social media, the types of content they view, and their own online contributions and activities, and in the case of minors, encourage parental mediation of online content.

may also provide a means of connecting individuals with treatment resources and helping them toward recovery. In other areas of mental health, social media markers have been used to identify those at risk for mental health concerns.⁴⁶ This is a promising approach to early identification of eating disorders, and may assist in promoting earlier access to treatment. Furthermore, increasing the number of social support resources online for individuals with eating disorders could also be a promising direction. In response to the documented effects of engagement in photo-based online activities on eating disorder risk, programs targeting media literacy around social media have started to emerge and revealed promise among adolescents.⁴⁷ More research in this direction is warranted.

More broadly, it might also be helpful for clinicians to encourage clients to consider their relationship to social media and the Internet, and their reliance on it. It has been suggested that the constant solicitations of social media might also increase stress and anxiety.⁴⁸ In the context of eating disorders, excessive use of social media may also increase the frequency of appearance comparisons and other unhelpful behaviors. Therefore, some clients may also benefit from considering the value of limiting their time online. In the case of youth, parental mediation of Internet use has been shown to be helpful and increase positive Internet use.⁴⁹ **Box 2.**

SUMMARY

The Internet and the rapid expansion of social media have created a more visual and interactive online environment, such that youth are more exposed to content promoting appearance ideals and diet culture than ever before. Social media has also given youth access to a much wider array of content and groups of people than they might otherwise encounter, in a way that can increase risk for and maintain eating disorder behaviors. Increased oversight and participation in youth's social media use by parents or other significant others who can mediate the effects of social media use, as well as education and awareness raising among adolescents as well as parents, health

care professionals, and educators are sorely needed. Professional organizations have advocated for the removal of proeating disorder online content, and several sites have taken action; still, monitoring the online space is difficult. The creation of more supportive online content around treatment seeking is an important need and the effectiveness of such interventions should be measured. Clinicians should explore their patients' use of Internet and social media and consider the impact of this use on treatment. In addition, clinicians should broaden their knowledge of useful online resources that may be helpful to clients or their families.

CLINICS CARE POINTS

- Social media users who use photo-based applications such as tik-tok and Instagram, and who have a greater emotional investment with their self-image and selfie taking and editing have a higher risk for eating disorders and greater eating disorder symptoms.
- Clinicians should explore patient engagement with social media and the internet, and their reliance on it.
- Discussions about the ways that social media use may increase stress and anxiety should be explored.
- Discussions about how social media use may increase the frequency of comparisons about appearance and other behaviors that reinforce disordered eating should be explored.
- Clinicians can encourage limiting patient time online, and may engage parents to mediate use of the internet.

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