

**The Effects of Social Media on the Development of Anorexia Nervosa and Bulimia Nervosa
in Adolescent Females**

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Introduction

In American culture, it has historically been thought that thin is ideal. From Barbie dolls to Miss America competitions to bikini models on Instagram, young girls across the country grow up under the impression that thin is pretty and perfect, whereas fat is ugly and unacceptable. While this notion is entirely untrue, the societal norm of the ideal female body type has formed to be one that is thin. This impression begins in childhood and only advances as young girls become women and are further exposed to this “ideal body image” through the use of social media platforms such as Tumblr, Instagram, Twitter, and Pinterest. By filling adolescent female minds with the unrealistic perception of what a woman should look like, social media has been directly linked to the spike in eating disorders in the United States, specifically anorexia nervosa and bulimia nervosa. Today, 8 million Americans live with an eating disorder, 90% of them being young females (Daw, 2001). With the average teen spending 7 hours and 22 minutes per day on a mobile device (Brigham, 2018) and with photos and promotions of thin women, natural or not, flooding the feeds of these teens’ accounts, it is no surprise that young women across the country are finding themselves displeased with their bodies and looking for unhealthy ways to change them. Not only are eating disorders filling the minds of these young women, but they are causing unnecessary mortalities by nutritional deficit or suicide that can be avoided with the censorship of pro-eating disorder content and parental education.

Etiology and Pathophysiology of Eating Disorders

An eating disorder, also called an ED, is a mental illness defined as a constant disturbance of eating behavior or a behavior intended to control one’s weight, which significantly impairs physical health or psychosocial wellbeing and is not secondary to another medical or psychiatric disorder (Klein & Walsh, 2004). It is a disease of the mind in which one attempts to control his or her weight to a point where it negatively impacts their thoughts, actions, and routine activities of daily living. The most common eating disorders in the United

States are anorexia nervosa, bulimia nervosa, and binge-eating disorder. Many often confuse eating disorders as being accompanied by a physical diagnosis. For example, “anorexia” is a common side effect of many medications or illnesses like the flu that cause a loss of appetite. However, *anorexia nervosa* and all other EDs are psychiatric diagnoses that do not come from underlying medical diseases. Once an ED has begun, it progresses quickly and is difficult to treat. Many psychological, social, and psychosocial factors may contribute to the precipitating causes of the eating disorder, including negative comments about one’s weight or viewing oneself as fat compared to models they see on Instagram. Patients with EDs such as anorexia nervosa and bulimia nervosa often lead themselves down a dark path of isolation, poor hygiene, diminished socialization, and improper nutrition that can critically affect their health in the present moment and in the future.

Anorexia Nervosa and Bulimia Nervosa: Diagnosis and Clinical Manifestations

Anorexia nervosa affects 0.5-2% of all women, and that statistic is growing each year. Anorexia is defined as the relentless and unwavering attempt at thinness and refusing to maintain body weight and body mass index at a minimally acceptable standard for age and height (Patton et. al, 1999). People living with anorexia have an intense phobia of gaining weight or “becoming fat”. They base all thoughts and actions on their weight, and they exhibit disturbed perceptions of their own body shape and size by fasting and exercising excessively. Their weight loss is typically conducted in stages. If the person is initially overweight, the weight loss may be socially reinforced by friends or family with comments about the person’s weight and appearance. Initial rationing of meals may occur and seem innocent; for example, eliminating desserts followed by meats followed by anything that may contain fat or oil. They may even claim that they have become vegan or vegetarian. They will eat slowly with frequent pauses in meals and will pay increased attention to nutrition labels and caloric content of foods. They will label “safe foods” and “forbidden foods” and may eat as little as one apple or bite of salad per

day. They may begin to restrict fluids or use it to replace food completely. They will pay increased attention to body weight, shape, and size, and will have repeated rituals such as weighing themselves daily or wrapping a hand around their forearm to estimate and measure themselves. Eventually, they will avoid social situations where eating is required and will show declined interest in what used to be pleasurable to them. When someone notices their weight loss, especially in the psychiatric clinical setting, a person with anorexia will typically turn to deception by claiming that they “already ate”, or they will “water load” to gain water weight and make it seem as though they have gained weight. They may also sneak heavy objects like rocks in their pockets when being weighed in front of someone, or they may wear loose-fitting clothes to hide weight loss (Klein & Walsh, 2004).

Bulimia nervosa, another common ED, affects 1-3% of all women and develops in late adolescence or early adulthood. It is defined as recurrent episodes of binge eating, which is eating in excessive amounts with subjective loss of control followed by inappropriate behavior that attempts to avoid weight gain, usually self-induced vomiting, excessive exercise, or laxative use (Klein & Walsh, 2004). To be diagnosed, it must occur twice a week for about 3 months. Someone with bulimia typically has a normal body weight, but bulimia can be dual diagnosed with anorexia in females if the person’s body mass index is less than 17 and she has missed 3 consecutive menstrual periods. Dieting usually precedes the onset of the binge-eating, and bulimia is typically caused by the same environmental factors as anorexia: childhood and parental obesity, early experience of critical comments by family about weight and eating patterns, anxiety and major depressive disorder, drug abuse, impulsivity, and especially comparing oneself to other women who weigh less (Patton et. al, 1999)

Like anorexia, bulimia’s clinical manifestations arise in stages. It is usually inspired by a friend, teammate, or popular media inducing vomiting or defecation either manually or with pharmacologic emetic drugs, laxatives, enemas, or diuretics to lose fluid. Bulimics feel that they

can eat all the good foods and not gain weight because they have a way to eliminate it all when they are finished eating. They run a constant cycle of eating excessively, vomiting or defecating everything out, then not eating at all. Frequency, duration, and amount of food in the binge will increase over time, as will the purging period. Bulimics may hide food in unexpected places and will binge alone secretly late at night. After a binge, they will conceal the evidence and will disappear for an hour or more to purge. Some may not binge at all but will show symptoms of anorexia nervosa accompanied by purging techniques. Similar to anorexia, they will ruminate, pick at, and spit out foods, and they will distinguish between “safe foods” and “forbidden foods”. Certain triggers, whether they be specific foods, comments, or media posts, will incite their binge and purge (Klein & Walsh, 2004)

Biological and Sociocultural Influences

Those with a family history of eating disorders are 7-20 times more likely to adopt one in their lifetime. There are studies currently being conducted on gene expression of traits linked to EDs under particular environmental circumstances including home life and media exposure (Patton et. al, 1999). Besides biological influences, sociocultural influences in Western culture revolve entirely around the media. Today’s popular media not only equates beauty with a slim and petite physique, but also broadcasts means by which this is achieved in advertisements for diet regimens and fitness clubs (Spettigue & Henderson, 2004). Children in the US and UK begin expressing dieting concerns as early as age 8, and it is shown that eating disorders across adolescent females are far more prevalent in Western countries where media is more popular (Daw, 2001).

Development of EDs in Adolescents: Males v. Females

It is scientifically proven that EDs are more prevalent in females than in males. As a whole, they are nine times more common in females, and anorexia nervosa is twice as likely in females than in males (Patton et. al, 1999). The risk of developing an eating disorder in females

is increased sevenfold by psychiatric comorbidities like depression and anxiety. According to Klein & Walsh, the typical patient presenting for treatment of EDs in the US and Canada has been a Caucasian adolescent female of middle-to-upper socioeconomic background (2004). A study was completed in Australia over 10 years to track the development of EDs in 2,032 high school students every 6 months. After wave 2 of the study, 3.3% of female subjects and 0.3% of male subjects showed signs of EDs. Of the females, 7% had bulimia nervosa, 80% showed partial symptoms of bulimia nervosa, and 13% showed partial symptoms of anorexia nervosa (Patton et. al, 1999).

The onset of EDs in adolescence can be attributed to a variety of factors. Childhood obesity, one of America's pressing issues, can be accompanied by family telling the child to stop eating, lose weight, skip a meal, and diet which may ultimately lead the child to have a negative body perception and poor relationship with food starting at a young age. From childhood, media advertises role models as skinny girls. On the topic of sex roles in development of body dysmorphia, Richard Perloff (2014) argues the following:

“As a result of traditional gender role socialization processes, girls and women learn to self-objectify, internalizing societal emphases on attending to outward appearance rather than inner qualities; they also come to assign more importance to physical appearance than do boys, and are more attuned to appearance management to conform to stereotyped physical attractiveness ideals”.

This begins as early as 3 years old with Barbie dolls. Young girls begin their development into adolescence with the mindset that skinny is perfect, and that dieting and being thin will help them make friends and be more liked (see Figure 1).

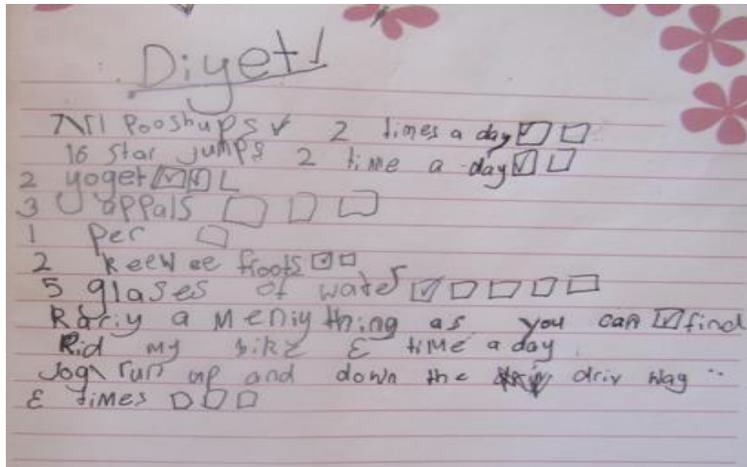


Figure 1. This photo was taken by Amy Cheney who found this in her 7-year-old daughter's room. Her daughter wrote out an unachievable plan of how to lose weight and be skinny through diet and exercise, even though she cannot even spell the word "diet".

The issue at hand is that adolescent females are viewing Barbie dolls, television characters, and social media icons as the ideal body type, but they are not realizing that very few women actually match this image in real life. This starts in childhood and only intensifies when young girls get their own cell phones and social media accounts. Katie Brigham from CNBC reported that the average child gets their first smartphone at age 10.3 and opens their first social media account by age 11.4. By the time they are 12 years old, 50% of children use at least one social media platform (2018). The age limit to register for social media sites is 13 in compliance with the Children's Online Privacy Protection Act, but children easily bypass this by using a fake birthday. Children often do not understand that the majority of what they see on the Internet is either false, photoshopped, or out of context. They view everything as true, even when it is not, which is especially dangerous when it comes to body image and body dysmorphia. When a 13-year-old girl sees a TikTok video of someone weighing 95 pounds and eating one grape per day, she is more likely to follow suit because she thinks that this routine is how she can achieve that societally ideal body type.

Self-Objectification and Normative Discontent on Social Media

In Western culture, the stereotype of standard beauty for females is being thin. It has been this way for decades and remains unchanged. Studies show that exposure to thin-ideal media messages internalizes distorted perceptions of beauty and increases women's dissatisfaction with their bodies. There are two sides to social media promoting the ideal body type. The first is unintentional by advertising women who are thin as role models. For example, Victoria's Secret models are idolized on Instagram for their beauty, as are other celebrities including Kim-Kardashian West, Kylie Jenner, and Megan Fox. These celebrities are not intending to encourage ED behavior by posting photos of their bodies on social media, but many young girls will look at those photos and wonder how they can look just like that. Statistically, it is more common that celebrities and verified users on social media are thin and not overweight. However, it is difficult to decipher whether their bodies are naturally thin or if they are enhanced with plastic surgery and/or photo editing. To adolescent females, this is irrelevant. All that matters is that they view these women as idols, and they want to look like them.

As young girls grow up, they socially learn self-objectification, the process by which girls and women come to view their bodies as objects to be looked at rather than homes to be lived in (Brown & Tiggemann, 2016). This can lead to normative discontent, the psychological internalization and constant body surveillance that can produce body image disturbance. This only increases with social media, which is filled with selfies, group photos, and millions of thin-idealized images (Santarossa & Woodruff, 2017) that young women are able to locate and pin to view continuously. These social networking sites are available for viewing 24/7 anywhere at any time with the click of a button, allowing for more opportunities for social comparison and a dysfunctional surveillance of photos of disliked body parts than were ever available with conventional mass media like movies or magazines (Perloff, 2014). With social media becoming easily accessible from a young age, one click of button can trigger a plethora of thoughts and actions mirroring eating disorders in order to fit the mold of what society sees as beautiful.

Pro-Ana and Pro-Mia

The second aspect of social media promoting the ideal body type is pro-ED content that romanticizes having an eating disorder. This content is known as “pro-anorexia” (pro-ana) and “pro-bulimia” (pro-mia). There are currently about 400 pro-ana and pro-mia websites that promote anorexic and bulimic lifestyles, and this content can be found on every social media platform simply by searching for it. Kate Moss, a famous British model, once said, “Nothing tastes as good as skinny feels”. This mantra has been used across social media on pro-ana and pro-mia pages that positively depict EDs and promote core themes such as perfection (linking thinness with being perfect), transformation (how EDs transform an individual from “ugly and fat” to “thin and beautiful”), and success (associating being successful with the ability to keep the weight off). Whether they find this content on websites, Instagram accounts, Facebook groups, or Pinterest boards, girls feel social support, acceptance, and belonging from these communities that are actually only making them feel worse about themselves (Spettigue & Henderson, 2004). Pro-ana and pro-mia communities glorify eating disorders by portraying them as “tragically beautiful” (Branley & Covey, 2017), making it seem justifiable and somewhat desirable. The content on these pages (see Figure 2) promotes calorie deficits, fasting, self-induced vomiting, and phrases including, “feet together, thighs apart”, “the sound of a stomach rumbling is equivalent to the sound of applause”, or “Code word IDEA- I don’t eat anymore” (Branley & Covey, 2017).



Figure 2. This is a pro-mia post on Tumblr, a social media site that, according to its website, “is a place to express yourself, discover yourself, and bond over the stuff you love”.

The “Rabbit Hole” Theory

When it comes to social media and the development of EDs in adolescent females, there are 2 perspectives: that of adolescents who may *potentially* develop an eating disorder, and that of adolescents who are *already diagnosed* with an eating disorder. The “rabbit hole” theory argues that viewing pro-ana or pro-mia content on social media, even without hashtags, captions, or account tags, will alter the algorithm of that person’s social media feed and fill it with more pro-ED content. Consider the following example:

A 15-year-old girl weighing 130 pounds with no history of eating disorders is scrolling through Instagram and sees a side-by-side post of a girl at 200 pounds and the same girl at 100 pounds. She clicks on the photo, and the caption reads, “Want to know how I lost 100 lbs in 4 months? Click my profile to learn more!”. The girl clicks on the profile. She spends 45 minutes scrolling through said Instagrammer’s photos of how she lost the weight by cutting out dairy, carbs, and meat completely, exercising 3x per day, eating only vegan juice twice a day, and putting a note on her refrigerator that says, “Want to be skinny? Don’t open the refrigerator you fat b*****”. The girl closes out of Instagram after scrolling for a while, but she opens it up later in the day. The first post to come up on her feed says, “The perfect thigh gap workout #fitspo”. The girl saves the post and clicks on the fitspo hashtag. After a week of looking into #fitspo, #thinspo, and #weightloss, her entire Instagram feed is full of content that promotes eating disorders. She begins to skip meals.

Social media is created on an algorithm that tailors suggested posts to what users search, like, comment on, save, and caption their photos (Branley & Covey, 2017). Therefore, someone who spends 45 minutes searching #proana will have a feed that is targeted towards anorexic content.

As mentioned previously, people with eating disorders are more likely to engage in ritualistic and obsessive-compulsive behaviors. The rabbit hole theory supports the idea that just

one post can trigger someone who has an eating disorder or is at risk of developing one. This is especially dangerous for those who are in recovery from an ED. The American Journal of Psychiatry reports that relapse rates for anorexia and bulimia are between 36% and 35% respectively, and the highest risk for relapse from anorexia nervosa is in the first 18 months after treatment (Keel et. al, 2005). By accessing pro-ana and pro-mia content so easily on social media, people in recovery from EDs are at much higher risk of relapse with this triggering content right at their fingertips.

#Thinspo and #Fitspo

The concepts of Thinspiration, or Thinspo, and Fitness-inspiration, or Fitspo, dominate pro-ana and pro-mia content and idealize being thin and exercising excessively to look pretty (see Figure 3). In a study conducted by Dr. Jenine Harris and colleagues, 1,035 tweets were collected with 67% of them involving body image, fitness, food, dieting, or eating disorders. Of the collected tweets, many had the hashtag #fitspo and involved weight loss journeys and exercise routines. Many also had the hashtag #thinspo that included images or videos showing an individual's body or portion of the body. One third of these photos and videos focused on the "problem areas" including the waist, hips, and stomach. 75% of the #thinspo tweets showed an extremely thin person, but only 3.4% the #fitspo tweets showed an extremely thin person (Yom-Tov et, al, 2012). Fitspo portrays more exercise for weight loss, whereas thinspo portrays more eating disorders, fasting, and purging behaviors for weight loss.

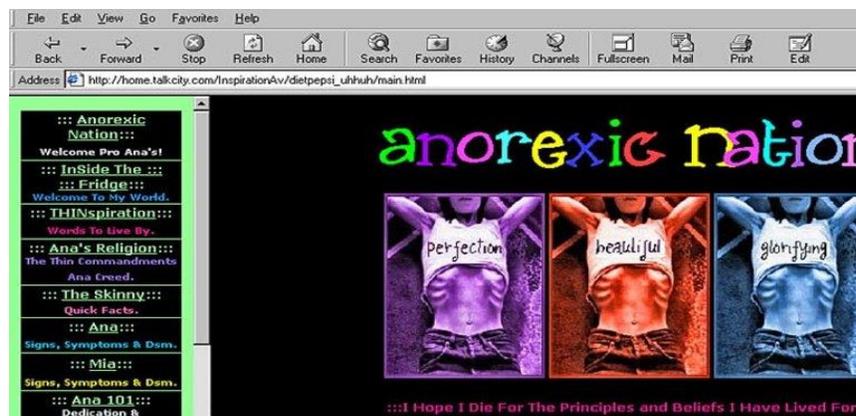


Figure 3. Pro-ana and pro-mia sites include content such as Thinspiration words to live by and “inside the fridge” to encourage viewers to adopt the pro-ED lifestyle.

The closure of pro-ana and pro-mia websites began with Yahoo in 2001 and ultimately led to sites like Tumblr releasing a statement in 2012 that they do not allow promotion and glorification of self-harm. Pinterest followed suit in their terms and conditions, and it is now common for all social media platforms to include ED content as violation of their community guidelines (Griffiths et. al, 2018). Many will give a warning on posts that involve EDs, and specific hashtags such as #thinspo, #fitspo, #proana, or #promia will automatically give these content advisories (see Figure 4).

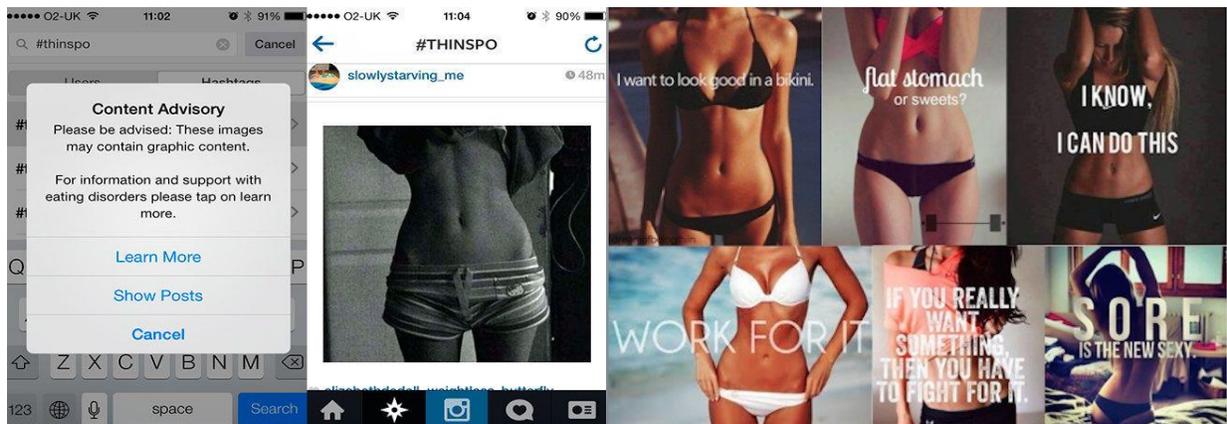


Figure 4. #Thinspo and #Fitspo are accessible on every social media platform, including Instagram as shown above. Over time, social media sites have adjusted their content advisories to warn users about the content that they are about to see, as it may be triggering for some.

Studies and Statistics

O'Brien Instagram Study

In a thorough study conducted on 8 women with eating disorders, Kendall O'Brien from the University of Southern Florida reported that they primarily use Instagram to “get ideas” through hashtags like #proana. One example is the pencil test where a pencil is placed on the floor and the person is deemed “too fat” if they cannot see it because their stomach is in the way.

They also said that they get recipe ideas from Instagram for meals with the least calories, fat, and

carbs, and that they learned to chew gum and fill up on water rather than eating. O'Brien writes that 81% of 10-year-olds are afraid of being fat, and that although media bombards women with idealized images of thinness, only 5% of females naturally look that way (O'Brien, 2015). This type of content on platforms such as Instagram cause women to fall prey to the belief that their own bodies are abnormal and that they would be happier if they lost weight. Not only is this a factor in the development of depression, low self-esteem, and media-induced body dysmorphia, but there is a lucrative market in the media that promotes the idea that a woman's job is to keep a slender figure (O'Brien, 2015).

Brown and Tiggemann Study

In the Brown-Tiggemann study, 46 participants were shown 15 images for 10 seconds and were asked to examine their mood, body dissatisfaction, measures of appearance comparison, and celebrity worship. Some participants were shown travel pictures, and some were shown photos of celebrities and peers. Participants who viewed the celebrity and peer images reported feeling a more negative mood and greater body dissatisfaction than the travel group. The celebrity photos used were some of the most liked on Instagram, and the peer images were real pictures taken from random public Instagram accounts. Brown and Tiggemann say that these results were expected due to the stigma of editing body shape, skin, teeth, and using filters (2016).

Spettigue and Henderson Study

In the Spettigue-Henderson study, girls aged 11 to 17 were given 2 magic wishes. The number 1 result was to "lose weight and keep it off". This study was conducted to prove normative discontent, the psychological term that normalizes being unhappy with one's own body as a female. The study also showed that women with anorexia are most likely to engage in heavy media use, deeming it to be an "addiction" (Spettigue & Henderson, 2004).

Censorship and Terms of Agreement

Instagram v. Twitter

There is a sharp contrast between social media platforms that censor pro-ana and pro-mia content and those that do nothing at all. Instagram implemented a policy in their Terms of Agreement warning users against publicizing self-harm and mental illness. Anything violating this would result in a disabled account without warning, and Instagram urges its users to report anything that may violate this policy. They have also issued warnings on sensitive posts and provided resources since it is impossible to censor and delete every pro-ED post (see Figure 5). Twitter on the other hand does nothing to censor or warn about #proana and #promia. Conducting a simple search of the hashtags brings up over 400,000 tweets about EDs.

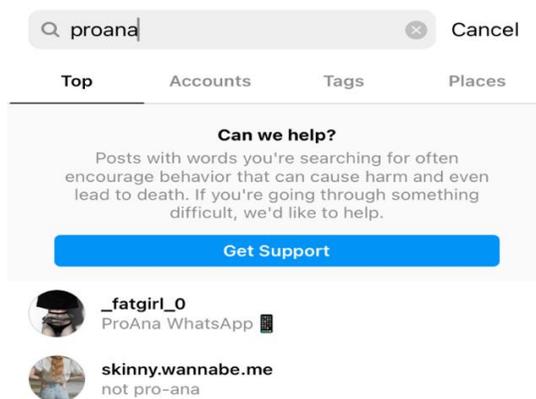


Figure 5. Instagram warns its users against pro-ED content and offers support resources.

TikTok

TikTok is an up-and-coming social media platform where users post 15 or 60-second videos of virtually anything. It has become increasingly popular for users to post content about weight loss, body dysmorphia, and eating disorders while either intentionally or unintentionally glamorizing them. The most popular is a “what I eat in a day” where a video is posted of everything that person eats in one day, often accompanied with a weight loss story. While weight loss is not always a bad thing, registered dietitian Jenna Werner states, “a lot of these ‘what I eat in a day’ posts are like 900 calories, and they’re making people look at it and say, ‘If I eat exactly what she’s eating I’ll look like her’. But they’re actually going to be starving and really

hurting their health, metabolism, and their future” (Kato, 2020). 32.5% of TikTok’s 800 million users are between ages 10 and 19, majority being female, and this is the content that they are exposed to.

After coming under attack from outside media, TikTok released a statement to the New York Post saying, “We care deeply about our users who may be affected by eating disorders and are focused on expanding our partnerships and building upon our product, policies, and protective measures to provide additional in-app resources for this community”. Their community guidelines now explicitly indicate that content promoting self-harm also includes content that “promotes eating habits that are likely to cause health issues and supports pro-ana or other dangerous behavior to lose weight”. However, content that promotes anorexia and bulimia has not been entirely banned from TikTok and continues to be an issue for many. MEEDA, the Middle East Eating Disorder Association, has created a petition demanding that TikTok ban all content that promotes disordered eating and extreme dieting. Carine El Khazen, the clinical psychologist on the MEEDA team, says that the major process of development in eating disorders is comparison to others, and with vulnerable teens predisposed to that kind of thinking at a young age, “the gun is loaded and the content on TikTok is pulling the trigger” (Kato, 2020).

Is There a Solution?

While it is almost impossible to censor all pro-ana and pro-mia content on social media, there are ways to prevent adolescent females from viewing this content and support them if they do engage in ED behavior. Psychiatric assistance in in-patient facilities, out-patient centers, group therapies, and individual therapies can give teens an outlet for treatment and counseling and can help them identify triggers that may spark ED behaviors. Besides professional help, many accounts on social media are beginning to promote body positivity to outweigh the content that may promote the development or relapse of an ED. Brittani Lancaster, a 22-year-old verified TikTok user, shares her story of recovery from two eating disorders and posts a daily “what I eat

in a day” on TikTok that is healthy and realistic. When interviewed by the New York Post, she said, “I want people to look at my content and look at what I eat in a day and realize that you can eat a normal amount of food and be a healthy human being. It’s a realistic ‘what I eat in a day’ versus some videos that are not that way”. She commented that there is a significant lack of self-love advocates on TikTok, and while that community has since grown, there is still triggering, content that promotes eating disorders and is not being addressed. (Kato, 2020).

It is most important for parents of adolescent females to be aware of the dangers of social media regarding disordered eating. It is rare today that parents will sit down with their young daughters and talk about the content that they may be viewing on social media. With most kids creating social media accounts by age 11, parents are losing control over their children’s content online because smartphone use is so prevalent at a young age. This is new to parents- they are raising a generation of kids with information at their fingertips that they themselves never experiences as a child. Parents should read the community guidelines before letting their children set up accounts, be educated on warning signs of eating disorders in their daughters, avoid using trigger language when it comes to their daughters’ eating or exercise habits, and evaluate their own history of body dysmorphia or ED behaviors that may have passed to their daughters.

Conclusion

Over the last 20 years, the rising popularity of social media has been directly linked to the rising occurrence of anorexia and bulimia nervosa in adolescent females. At such a critical point in their development, young girls are viewing content that may lead to disordered eating which can be detrimental to their health and future. Society has set an unrealistic expectation for the ideal body image for women that is only heightened by social media. It is crucial to educate young females on identifying this triggering content, and they should be reminded that they are beautiful regardless of their physical appearance and what society expects from them.

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