

Proanorexia Communities on Social Media

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The Internet and social media have become increasingly important for children today, as they seek information, friends, and social support online. Social media is also home for communities that may advocate unhealthy behavior. Proanorexia (proana) and probulimia sites and online communities are publicly available; they are interactive and promote “thinspiration” (“inspirational” pictures of extremely thin bodies).¹ Such material is easy to access, and some children might find it by accident. According to a 25-country EU Kids Online survey, for example, 10% of children aged 9 to 16 had seen eating disorder sites online, with girls being more commonly exposed to such material than boys.² With the rapid expansion of social media, proana and other harmful online communities have a global audience. Proana communities are active on different social media sites, including Facebook, YouTube, Twitter, Instagram, Pinterest, Flickr, and Snapchat.³

Members of proana communities report higher levels of disordered eating, and in addition to weight concerns, their members are motivated by support and belonging.⁴ Content analysis of proeating disorder sites have shown that mutual support and solidarity is a strong theme¹; hence, it might be difficult for parents and professionals to intervene in such potentially harmful membership in proana communities. Young people form strong emotional bonds in online communities, and their involvement in these communities is likely to have an impact on their choices in everyday life. Young people may also internalize certain values and behavioral norms more effectively from online communities than from various offline contexts. The abovementioned issues suggest that user-generated online content can be a significant source of influence. For example, a recent study revealed that proana YouTube videos were more favored by viewers than were informative videos describing the health consequences of anorexia.⁵

Due to the rapid increase of social media’s popularity, it is virtually impossible to control or censor existing online content. In addition, health campaigns might not find their targets on the Internet. Due to these factors, community response is crucial in social media. Although children might not listen to their parents or to adults in general, they might still be influenced by their peers within social media. Proana communities are not necessarily universally approved of within social media; they have also aroused critical responses; an example is so called anti proanorexia

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(ie, anti proana) communities who are opposing proana content and providing support for those who are recovering from anorexia.⁶ Our study provided a new perspective on the proana phenomenon by analyzing emotional reactions to proana and anti proana communities on YouTube.

Of the various social media sites, we selected YouTube because it is the most popular video-sharing Web site, with over 1 billion users, and because it is remarkably popular among children and adolescents. Users can access YouTube without signing in, which helps make it a widely used service. Interactivity is built into YouTube and is one of the reasons for its popularity. Users may comment on the videos and show either positive or negative sentiment by clicking thumbs up or down. These interactive features of YouTube give insights into audience reactions; these insights might help us to understand how, for example, proana videos are collectively approached. In the context of eating disorders, the community response becomes important, as peer groups influence disordered eating among adolescents. Positive comments from proana groups might increase user's feelings of attractiveness and make anorexia more normalized.

We used the YouTube Data Application Programming Interface for data collection. The user profiles were selected in October 2014 by searching for the most popular profiles using the search terms "pro-ana" and "anti pro-ana." We selected 25 proana and anti proana profiles based on their popularity. The selected profiles included video comments posted between October 2012 and October 2014 in English. All YouTube profile and video information was retrieved by using an automatic crawler. The total video data included 1163 videos uploaded by 50 YouTube users, but 671 videos were excluded because they were

not about anorexia. Additionally, 96 videos were excluded because they did not have any comments or because the whole comment section was disabled. The final data set contained 395 videos and 12 161 comments.

We used the SentiStrength automatic sentiment analysis tool to assess both positive and negative sentiments from the comments. SentiStrength uses an algorithm to estimate the sentiment content of texts based on lexical information from an extensive list of sentiment words and grammatical categories.⁷ SentiStrength is particularly useful when analyzing large amounts of data extracted from popular social media such as Twitter or YouTube. SentiStrength simultaneously provides ratings for positive and negative sentiments (allowing for the fact that the same text may express both positive and negative sentiments). Ratings vary from 1 (not positive/negative) to 5 (extremely positive/negative).

The findings indicate that anorexia video material was uploaded mostly by girls (94%) and was from 13 different countries. Almost half of the videos came from the United States (44%), and 73% were from English-speaking countries. We found that anti proana videos were more popular, with 4.8 million video views (mean = 18 399) in total, compared with proana videos, which had 1.4 million total video views (mean = 10 189). Anti proana videos also received more comments (10 047 vs 2114), commenters (6909 vs 1594), and video likes (mean = 179.03 versus mean = 33.56) than proana videos.

Our explanatory analyses concentrated on the positive and negative sentiments expressed in the video comments. The regression models controlled for the number of video views and comments, number of months the video had been on YouTube, the duration of

the video, the uploader's activity as a video commentator, and the uploader's country information. The adjusted predictions reveal that anti proana videos were commented on more positively (2.15 rating, 95% confidence interval [CI]: 2.11–2.19) than proana comments (2.02 rating, 95% CI: 1.98–2.06). There was no statistically significant difference between negative sentiments expressed in the video comments (anti proana: 1.89, 95% CI: 1.84–1.94; proana: 1.89, 95% CI: 1.77–2.00).

Clinicians, educators, and parents would benefit from understanding the dynamics of social media communities. Children and adolescents use massively popular sites such as YouTube to find user-generated information. The existence of proana sites and communities is concerning, but it is equally important to understand what kind of response they elicit. We were able to show that the proana community has online opponents, namely the anti proana community, which advocates for recovery.

Our sentiment analysis revealed that the anti proana community is a counteracting force against those promoting eating disorders online. Anti proana videos had more views and more positive comments and feedback than did proana videos. Therefore, the study suggests that YouTube audiences are more likely to encourage recovery than to advocate for unhealthy eating practices. However, future studies should continue working with the sentiments expressed in online communities frequented by children and adolescents to improve assessments regarding opposing points of view on health issues such as the prevalence of eating disorders. It is equally important to understand that young people today use multiple Internet services, which may give rise to new types of proana communities.

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ABBREVIATIONS

CI: confidence interval
proana: proanorexia
anti proana: anti proanorexia

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