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**Achieving Anorexia: An Improbable but Possible Aspiration among College-Age Students**

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College Honors Thesis

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## Abstract

The current study investigates the extent to which UVM students are aware of and visit “pro-ana” online communities (websites that promote anorexia-like thinness [AN-thinness]). The study also evaluates the relationship between engagement with pro-ana websites, eating disorder (ED) symptoms, and positive attitudes related to AN-thinness and the diagnosis of anorexia nervosa (AN). The participants were 104 women enrolled at the University of Vermont who volunteered to complete an online survey in exchange for extra credit points towards their psychology courses. More than half (52%) of the participants had previous knowledge of pro-ana websites and almost one fifth (18%) had visited a pro-ana website in the past. Bivariate correlational analyses revealed that BMI was positively correlated with *weight concern* and *shape concern*, but was not associated with *eating restraint*, *eating concern*, or opinions about AN and/or AN-thinness. There was also a significant positive correlation between ED symptomatology and positive attitudes toward AN and/or AN-thinness. Univariate analyses of variance (MANOVAs) revealed that participants who reported greater engagement with pro-ana websites also reported greater ED symptoms, as well as greater positive attitudes toward AN and AN-thinness. The findings suggest that exposure to pro-ana communities may contribute to the development and severity of EDs.

*Keywords: pro-ana, engagement, media, exposure, anorexia nervosa, eating disorder, admire, desire, attitudes, EDE-Q*

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### **Achieving Anorexia: An Improbable but Possible Aspiration among College-Age Students**

Low body esteem and the desire to be thin can occur in girls as young as 5 or 6 years of age (Collins, 1991; Dittmar et al., 2006; Dohnt & Tiggemann, 2006). Symptoms of Anorexia Nervosa (AN) can appear in children younger than 10 years (Fosson et al., 1987; Herpertz-Dahlmann & Dahmen, 2019; Russell, 2013). AN is an ED characterized by a) the maintenance of a significantly low body weight via self-imposed starvation or over-exercise b) persistent behavior that interferes with weight gain coinciding with an intense fear of gaining weight or becoming fat, and c) disturbance in the way that weight or shape is perceived, self-evaluation that is unduly influenced by weight or shape, or persistent lack of recognition of the seriousness of the current low body weight (American Psychiatric Association, 2013).

AN is a serious and potentially fatal mental illness (Walsh, 2013). The lifetime prevalence of AN is relatively low, about 0.9% in women and 0.3% in men (Hudson et al., 2007). AN has a very high mortality rate. For example, AN has more than twice the mortality rate than major depression and heavy smoking, and those with AN have six times the risk of mortality compared to the general population (Merikangas et al., 2010).

Among western cultures, messages that a thin body is ideal and that thinness can provide life satisfaction are ubiquitous (Rodin et al., 1984; Stice, 1994). In societies that idealize the thinness of women, advertisements and other forms of mass media often push such messages. This can lead to body dissatisfaction, one of the most empirically supported risk factors for the development of EDs (Attie & Brooks-Gunn, 1989; Knauss et al., 2007; Stice et al., 1998). Western cultures are not the only societies in which these issues occur, however. Over the course of the last several decades, AN and other EDs have become more prevalent among non-Western, non-White women (Cepeda-Benito & Moreno-Domínguez, 2019).

With the advancement of the internet, messages promoting the thin ideal are not only more prevalent than ever, but they can also be reinforced and amplified through virtual interactions (Juarez et al., 2012). *Pro-ana* websites, communities that promote disordered eating behaviors and anorexic-like bodies, have surfaced across the internet within the last few decades. Engaging in pro-ana websites is correlated with greater internalization of thin ideals, appearance comparison, weight dissatisfaction, and drive for thinness (Tiggemann & Miller, 2010).

### **Pride and Eating Disorders**

The goal-directed behaviors of those with AN can sometimes lead to a sense of achievement and success, especially when they result in weight loss and body transformation (Bruch, 1973; Goss & Allen, 2009; Faija et al., 2017). The relevance of pride in EDs was first recognized by Bruch (1973), who highlighted that one of her patients experienced a “sense of glory and pride in self-denial and feeling hungry” (p. 268). According to Faija et al. (2017), little progress was made on the theoretical and empirical study of pride’s role in EDs until several decades later, when Goss and Gilbert (2002) included pride as a construct in their theoretical model of the onset and maintenance of EDs. This model suggests that developing pride in the ability to over-exercise, control food intake, and manage moods effectively is a consequence of having an ED, a consequence that may, in turn, become a factor that maintains and strengthens the severity of the ED.

Goss and Allan (2009) highlighted the existence of one specific form of pride: *competitive pride*. According to the investigators, competitive pride can occur when individuals with an ED compare their disordered eating behaviors, body shape, or weight loss with those of other individuals with an ED.

Faija et al. (2017) interviewed women with current or past diagnoses of AN and identified different forms of pride (or pride stages). Some of the stages are intertwined with and contribute to the development of AN, whereas others emerge and are experienced as the person with AN seeks treatment and becomes healthier.

*Alluring pride* sneaks in insidiously as individuals start to make dietary adjustments and notice their behavior leads to sought weight losses. Alluring pride turns to *toxic pride* when pride evolves into feelings of superiority over others who may have similar goals but are unable to maintain a diet, cannot lose weight, or have more body fat than the self. Toxic pride is fueled by competitiveness and functions as a reliable, achievable, and predictable reinforcer.

Pushed by their desire to best themselves, and eventually by fears of not meeting their own expectations, individuals with AN set increasingly lower weight goals, which leads them to experience *pathological pride*. During pathological pride, the severity of their obsession or desire to be thin is so strong that even concerns over their health by others are heard as confirmatory evidence of their weight loss success.

*Anorexia pride* is expressed by patients at the beginning of their treatments. Despite their decision to recover, patients experiencing anorexia pride, especially those in an inpatient unit, may feel persistent vanity about their achieved low weight and may strive to be the “best anorexic.” The immediate and affirming feelings associated with this form of pride were found to interfere with individuals’ motivation to recover.

Finally, *recovery pride* and *resilience pride* are pride stages that successively recognize their perseverance in fighting AN, attainment of healthy eating patterns, realistic recognition of their disorder, and self-acceptance.

## **Pro-Ana Websites**

*Pro-ana* websites convey the message that being thin is highly desirable by presenting “thinspiration,” images of extremely thin women, and tips for how to restrict caloric intake and purge food or engage in compensatory behaviors to lose weight. (Borzekowski, Schenk, Wilson, & Peebles, 2010; Harshbarger, Ahlers-Schmidt, Mayans, Mayans, & Hawkins, 2009). There is relatively nascent literature that is beginning to investigate the pro-ana phenomenon in depth. This research can be broadly classified into correlational and qualitative investigations.

### ***Correlational Studies of Pro-Ana Websites***

Previous research by Bardone-Cone and Cass (2006) has indicated that viewing these websites is associated with body dissatisfaction. Specifically, their study found that women who viewed pro-ana content decreased in perceived attractiveness, appearance self-efficacy, and self-esteem. Negative affect and perception of being overweight also increased for these women after engaging with pro-ana websites. These effects were not found for women who visited the control websites.

Rodgers et al. (2011) found that members of pro-ana websites are likely to display high levels of disordered eating. For this study, disordered eating was evaluated by the Eating Attitudes Test (EAT)-40. (Garner & Garfinkel, 1979). All 29 participants in the selected sample scored greater than 30 on this test, indicating high levels of disordered eating.

In support of this finding, research by Harper et al. (2008) indicates that college students who participate in pro-ana online communities report higher eating and body image disturbances than those who do not. This study included 1575 undergraduate women at the University of South Florida who were taking an undergraduate course in psychology. From the total sample of



1575, 199 (13%) of participants reported having visited a professional website about EDs, a pro-recovery website, or a pro-ana website.

### ***Qualitative Studies of Pro-Ana Websites***

Rodgers et al. (2011) provided 29 members of an online pro-ana community with open-ended questions exploring qualitative attributes of the community. The participants largely equated happiness with weight loss and reported satisfaction with their membership in the pro-ana website. The most-reported motives for joining the community were to be provided with weight-loss advice and to receive support. The advice that participants reported receiving on the pro-ana website included techniques to avoid eating, decrease feelings of hunger, lose weight, avoid weight gain, and dissimulate weight loss.

Norris et al. (2006) also qualitatively assessed *pro-ana* websites and their content. One of the common themes reported by the researchers was termed *control success*. According to this study, most members of pro-ana communities measured control success by weight loss and equated control with strength of will. The researchers also identified another commonly found theme, '*transformation*,' which is the idea that EDs can transform a person from 'fat and ugly' to 'thin and beautiful'.

Strife and Rickard (2011) conducted a qualitative content analysis of several pro-ana websites to understand how some individuals conceptualized the function of self-starvation. They discovered that many members of these communities viewed EDs, including AN and bulimia nervosa (BN), as lifestyle choices. According to this study, those who reported viewing AN as a lifestyle choice tended to perceive anorexic individuals as empowered rather than victims of mental illness.

Fox et al. (2005) suggest that for members of pro-ana websites, anorexia represents stability and control. In addition to qualitatively assessing the content of pro-ana websites, the study included interviews with individuals who were diagnosed with AN. Many of the interviewees' descriptions of AN included the perception of the disorder as a source of security, comfort, or even worthwhile achievement.

### **Current Study**

Given the relative newness of the pro-ana phenomenon, the first aim of the study was to investigate the extent to which undergraduate women at the University of Vermont perceive AN positively and engage in pro-ana websites. To assess positive perceptions and desires for the AN diagnosis and its associated thinness, a questionnaire was developed for this study that was designed to measure admiration for the illness. To assess pro-ana website engagement, the study utilized a series of newly developed questions that assess the prevalence of pro-ana website awareness, ever visitation, visitation in the last 12 months, and visitation in the last 30 days.

Given that individuals with EDs may experience pride as they notice that their behaviors lead them to lose weight, and ultimately may feel pride in achieving extreme, unhealthy thinness and the low-weight threshold associated with AN (Faija et al., 2017), the first hypothesis of this study was that there is a significant positive relationship between ED symptomatology and hypothesized positive attitudes toward AN and/or AN-thinness.

Finally, this study aimed to assess the extent to which increasing levels of knowledge and involvement in pro-ana communities might predict or be associated with ED symptomatology and perceptions/desires for AN/AN-thinness. Thus, the second hypothesis of this study was that as levels of awareness of and involvement in pro-ana sites increased, participants would report higher ED symptomatology and perceptions/desires for AN/AN-thinness.

## Methods

### Participants

Participants were 104 undergraduate women from the University of Vermont who volunteered to respond to an online survey in exchange for credit towards one of their psychology courses. Most of the data were collected at the beginning of the 2020 Spring semester (only 13 participants completed the survey after March 11, the date when students were notified that the campus had been closed and courses would resume online in response to the COVID-19 pandemic). All of the participants were young adults (age range = 18-24,  $M = 19.5$ ,  $SD = 1.1$ ). The sample was predominately white, with most participants self-identifying as Caucasian (83.7%). Other than Hispanic/Latinx (3.8%) and Asian-American (2.9%), all other race/ethnic categories were represented at rates below 2%. 13 participants reported current or past ED diagnoses (12.5%), with the two most common being AN (7 participants) and BN (5 participants).

### Materials

#### *Pro-Ana Engagement (PAE-Q)*

The PAE-Q is a 32-item questionnaire developed for the current study to assess the extent to which the participants were aware of, engaged with, and participated in pro-ana online communities (see Appendix). Item 1 of the PAE-Q asked participants whether they were aware of the existence of “pro-ana” online communities, and if so, how they had become aware of their existence. Those who responded “yes” to the first question were then asked a series of successive questions aimed to gauge their familiarity and involvement with pro-ana web communities. For the present study, the most relevant items asked participants whether they had a) ever visited a pro-ana website, b) visited a pro-ana website in the last 12 months, and c) visited a pro-ana website in the last 30 days. PAE-Q items are included in the Appendix. See table 1.

### ***Eating Disorders Examination Questionnaire (EDE\_Q; Fairburn and Beglin, 1994)***

The EDE-Q is a 28-item measure with four subscales that measure different eating-disorder related constructs: *restraint*, *eating concern*, *shape concern*, and *weight concern*.

Participants are asked to report on a seven-point, Likert type scale (0 to 6) on how many days of the previous 28 they have engaged in various behaviors, including having specific thoughts and feelings. The ratings for each item on a subscale are then summed and divided by the number of items in each of their respective subscales, or by 28 for a global, total score. In the present sample, the internal consistency for the total EDE-Q score ( $\alpha = .97$ ), as well as for each of the subscales ( $\alpha = .87$  to  $.94$ ) were excellent.

### ***Perceptions of Anorexia Nervosa Diagnosis and Thinness (PANDT)***

The PANDT was developed to measure positive receptiveness to both AN-thinness and the AN diagnosis. The PANDT consists of 15-items that are scored on a 5-point scale (0 to 4). These questions ask participants to rate the extent to which the statement representing each item is true for them. Summing the ratings for each of the items produces an overall PANDT score that can range from 0 to 60 (with scores  $> 30$  indicating positive receptiveness). Although the PANDT has not been previously validated, preliminary analyses conducted with the current data set suggest its scores have excellent internal consistency ( $\alpha = .93$ ). In addition, total PANDT scores correlated substantively and significantly with each of the scales of the EDE-Q (all  $r > .53$ , see Table 3), which provides evidence of convergent validity. The PANDT items are included in the Appendix. See table 2.

### **Procedure**

Participants were recruited through SONA, a web-based experiment management system maintained by the Department of Psychological Science. An email announcing the study was

also sent out by the psychology department to all undergraduate students of psychological science at UVM. Those interested in participating were directed from the SONA recruitment platform to Qualtrics, an experience management company website that hosted the survey. On the first page of the Qualtrics survey, participants read the full informed consent form. Because participation was anonymous and took place online, informed consent was implied by participation. Participation in the online study took no longer than 40 minutes. Participants received 1 point of SONA credit which could be applied towards extra credit in a psychology class.

### **Data Analysis**

All analyses were conducted using SPSS-v26. Bivariate correlation analyses estimated associations between EDE-Q subscale scores, EDE-Q total scores, PANDT scores, and BMI. Then, three sets of two univariate analyses of variance (ANOVAs) were conducted to assess whether increased awareness and participation in pro-ana websites was associated with greater ED symptomatology as measured by the EDE-Q, as well as higher positive attitudes and receptivity towards the diagnosis of AN and AN-thinness as measured by the PANDT. The first ANOVA included only the 85 participants who had never visited a pro-ana website and compared ED symptomatology and PANDT scores between the 35 participants who already knew about pro-ana websites with the 50 participants who did not previously know about pro-ana websites. The second ANOVA compared just the 19 participants who had ever visited a pro-ana community with the 35 participants who knew about pro-ana communities but had never visited one. Finally, the third ANOVA compared the 9 participants who had visited a pro-ana web site in the last 12 months with the 10 participants who had also visited pro-ana communities, but not in the last 12 months.

## Results

### Descriptive Statistics

#### *Pro-Ana Website Engagement*

A total of 54 participants (52%) reported that they knew that pro-ana websites existed before participating in the study. Out of these 54 participants, 35% (n = 19) reported that they had ever visited a pro-ana community. That is, 18% of the entire sample reported that they had visited a pro-ana website at some point in their life. Nine participants reported having visited a pro-ana website in the last 12 months. These nine participants account for 47% of those who had ever visited a pro-ana website, 17% of those who knew about the websites, and nearly 9% of the entire sample. Additional data were collected on the nine participants who had visited a pro-ana community in the last 12 months. Of these, seven reported that their website visitation in the last 12 months had been less frequent than it used to be, and six participants reported having visited a pro-ana website in the past 30 days. These six participants account for 67% of those who have visited in the last 12 months, 32% of those who have visited a pro-ana website at least once before, 11% of those who have heard of pro-ana websites, and 6% of the sample.

These six participants were also asked which websites they most frequently use to engage with pro-ana communities. Tumblr.com, which was listed by four participants, was the most frequently cited website. Instagram was listed by two participants. MyProAna.com and Reddit.com were each listed once.

#### *Participants' Estimations of Website Visitation Among Peers*

The entire sample was asked the question, "About what percentage of people around your age do you believe know about these websites?" In this study, 52% of the entire sample knew about pro-ana websites before participating in this research. The majority (88%) of the 50

participants who had never heard of pro-ana websites underestimated this statistic. Only 12% of these 50 participants ( $n = 6$ ) correctly estimated or overestimated this statistic. Seven (20%) of the 35 participants who knew about pro-ana websites but had never visited one made correct estimations or overestimations. The 19 participants who had themselves visited a pro-ana website made more correct estimates and overestimates compared to the aforementioned groups (47%,  $n = 9$ ). Those who had visited a pro-ana website in the last year ( $n = 9$ ) made the highest estimates. The majority (56%,  $n = 5$ ) estimated correctly, and one participant (11%) overestimated. Thus, there is likely a positive correlation between pro-ana engagement and the percentage of other people that the participants believe have heard of pro-ana websites. The question, “About what percentage of people around your age do you believe have visited these websites in the last 30 days?” was evaluated in the same way and the trend was the same.

#### ***PANDT Scores across Unaware, Aware, and Ever-visitors of Pro-ana Websites***

Scores on the PANDT can range from 0 to 60, with scores above 30 indicating some level of agreement with statements that express positive attitudes toward AN-thinness and the AN diagnosis. Only two (3%) of the participants who were unaware ( $M = 3.62$ ,  $SD = 6.85$ ), and none of the participants who were aware but had not visited pro-ana websites ( $M = 3.14$ ,  $SD = 4.42$ ), scored 30 or higher on the PANDT. However, among ever-visitors to pro-ana websites ( $M = 12.62$ ,  $SD = 8.89$ ), four participants (20%) scored above 30 on the PANDT.

#### **Correlations**

Table 3 in the Appendix presents correlations for the following variables: BMI, EDE-Q total scores, EDE-Q subscale scores (*restraint*, *eating concern*, *weight concern*, and *shape concern*), PANDT scores. A number of significant correlations were identified. Specifically, EDE-Q total scores and PANDT scores were significantly positively correlated. Interestingly,

high scores on any of the EDE-Q subscales was correlated with high scores on the PANDT. That is, those who reported high levels of *restraint*, *eating concern*, *weight concern*, or *shape concern* were more likely to report a greater level of positive feelings and desires for the AN diagnosis and its associated thinness (and vice versa). Additionally, BMI was significantly positively correlated with high global EDE-Q scores and the *weight concern* and *shape concern* subscales of the EDE-Q. However, BMI was not significantly correlated with restraint concern and eating concern subscales, nor with PANDT scores.

### **ANOVA Analysis of Website Engagement, ED Symptoms, and AN Admiration**

The first set of analyses included only the 85 participants who had never visited a pro-ana website. These analyses did not reveal a significant effect for either ED symptomatology,  $F(1, 83) = 3.476, p = .066, \eta^2 = .040$ , nor for positive attitudes towards AN as measured by the PANDT,  $F < 1$ .

Among the 54 participants who already knew about pro-ana websites, the second set of analyses compared the 19 who had ever visited a pro-ana community with the 35 who had not. These analyses revealed that ever visiting a pro-ana website was associated with substantively and significantly greater EDE-Q total scores  $F(1, 52) = 9.108, p = .004, \eta^2 = .149$  and PANDT total scores,  $F(1, 50) = 10.717, p = .002, \eta^2 = .177$ . That is, compared to those who have never visited a pro-ana website, those who had visited a pro-ana website in the past reported significantly greater mean EDE-Q scores ( $M = 1.34; SD = 1.13$  vs.  $M = 2.53; SD = 1.74$ ) and PANDT scores ( $M = 3.32; SD = 4.54$  vs.  $M = 12.56; SD = 15.34$ ).

Finally, in comparison to those who had visited a pro-ana website before but not in the past 12 months, participants who had visited a pro-ana website in the last 12 months reported substantively and significantly greater EDE-Q scores  $F(1, 17) = 8.392, p = .010, \eta^2 = .330$  ( $M =$



1.60;  $SD = 1.38$  vs.  $M = 3.55$ ;  $SD = 1.56$ ) and PANDT total scores,  $F(1, 16) = 5.534$ ,  $p = .032$ ,  $\eta^2 = .257$  ( $M = 5.00$ ;  $SD = 10.58$  vs.  $M = 20.11$ ;  $SD = 16.10$ ). Thus, higher engagement with pro-ana websites was associated with greater ED symptomatology and more positive perceptions of AN and its associated thinness.

## Discussion

The current study aimed to examine the extent to which women in psychological science classes at the University of Vermont engage in pro-ana websites. Descriptive analyses found that more than half of the sample (52%) was aware that pro-ana websites existed, while almost one-fifth (18%) had visited a website at some point in their lives. Interestingly, the actual pro-ana visiting prevalence was considerably greater than the guessed prevalence rate by those who were unaware pro-ana websites existed, as well as by those who were aware of pro-ana websites but had never visited. However, those who indicated ever visiting a pro-ana website were less likely to underestimate or overestimate the actual prevalence or pro-ana website visitation. This latter result was not entirely inconsistent with the false consensus effect for “deviant behaviors.” The false consensus effect involves the idea that people perceive their behaviors as more common than the behaviors actually are (Dawes, 1989; Ross et al., 1977). While this effect has been demonstrated in behaviors such as illicit drug use (Wolfson, 2000), physical aggression (Russell & Arms, 1995) and smoking (Botvin et al., 1992), previous research has not evaluated this effect with regard to pro-ana website use.

In this study, those who were more engaged in pro-ana websites were more likely to make higher estimates about pro-ana website use than their peers, though no single group of high-engagement users provided an average overestimation. It is possible that this sample was more likely to include participants who were aware of pro-ana websites because of their interest

in psychology. For this reason, the study's statistic on the prevalence of pro-ana website visitation may not reflect the actual population statistic. Further research should include a sample with participants from a wider variety of majors to determine whether a false consensus effect occurs for pro-ana website use.

Those who had visited a pro-ana community website in the last 30 days were asked to list which websites they visited to reach pro-ana content. Of all of the websites that were named, only one participant listed a website that was entirely dedicated to pro-ana content (MyProAna.com). The rest of the communities were located on the social media platforms Tumblr, Instagram, and Reddit. Instagram and Tumblr both have community guidelines against self-harm that specifically admonish the promotion of pro-ED content. However, based on the information obtained in this study, both of these social media platforms are still being used to host pro-ana communities. Because of technological limitations and the circumvention of content moderation, it may be impossible to enforce such regulations across such massive online platforms (Gerrard, 2018; Cobb, 2017). This may mean that it is also impossible to abolish pro-ana online communities altogether. Further research should investigate the size and content of pro-ana communities that are hosted by social media platforms to further understand this phenomenon and work towards a solution.

The current study also investigated the relationship between ED symptomatology, positive attitudes toward AN and/or AN-thinness, and BMI using bivariate correlation analysis. The EDE-Q served as a measure of *restraint, eating concern, weight concern, shape concern*, and provided a global EDE-Q score. The PANDT was used to evaluate positive attitudes and desires that were specific to the AN diagnosis and AN-thinness.

The results of this analysis found that while BMI was significantly positively correlated with *weight concern*, *shape concern*, and *EDE-Q global scores*, it was not correlated with any of the other variables. These results are supported by other findings that BMI is more strongly positively associated with *weight concern* and *shape concern* than with *restraint* and *eating concern* (Rø et al., 2012). These results also support the current study's first hypothesis that there is a significant positive relationship between ED symptomatology and positive attitudes toward AN and/or AN-thinness. Because this was a correlational analysis, it is not possible to know the direction of this relationship. However, both directions are equally concerning. If admiration of AN is caused by high ED symptomatology, then the goal of becoming anorexic is something that ED specialists should discuss with at-risk patients. If positive perceptions of AN lead to greater ED symptomatology, then work must be done towards changing this view of AN to prevent the development of disordered eating behaviors.

It is also possible that ED symptomatology and positive perceptions and desires for AN/AN-thinness are correlated because they are both increased by some other outside factor, such as exposure to pro-ana websites. To investigate this hypothesis, the study evaluated whether increased awareness and participation in pro-ana websites was associated with greater ED symptomatology and higher positive attitudes towards AN and AN- thinness. The results of this study provided evidence in support of this hypothesis. These results are consistent with previous studies which indicate that college students who participate in pro-ana online communities report higher eating and body image disturbances than those who do not (Harper et al., 2008).

### **Limitations**

There were several limitations to this study. Firstly, a large majority of participants in this study identified as Caucasian. While this is representative of the University of Vermont's ethnic

diversity, there was limited representation of other racial identities. Furthermore, this study only evaluated data from women. There is a dearth of ED research on samples of men. It would be beneficial to study whether gender effects the variables that were investigated. Including more variation among these demographics could also improve the external validity of these findings. Additionally, the sample was small and consisted mostly of individuals who did not have experience with pro-ana websites. Having a larger data set that includes members of pro-ana websites such as MyProAna.com would allow for a more comprehensive analysis of the effect of website engagement on the other examined variables. Finally, the PANDT is a new measure without published psychometric properties. Nonetheless, its reliability was excellent and correlated strongly with EDE-Q scores and each of the EDE-Q subscales, which suggest convergent validity.

### **Recommendations**

This study provides evidence that BMI is not related to *restraint* and *eating concern* even though BMI is used to indicate the severity of AN (APA, 2013). Additional research suggests that BMI is also not associated with AN prognosis, physical complications, or mortality, and thus may not be an ideal marker for the disorder's severity. (Arcelus et al., 2011; Mustelin et al., 2016, Whitelaw et al., 2018). As previously mentioned, competitive pride, alluring pride, and anorexia pride can occur when individuals with EDs compare their symptoms with those of others and find that their own are more severe (Faija et al., 2017, Goss & Allan, 2009). Thus, it is possible that some individuals find the AN diagnosis desirable because of its association with the low BMI symptom (and, thus, its potential to increase these forms of pride). Future research should investigate whether removing this criterion would decrease desirability and positive

perceptions of the disorder. These results should then be weighed against the usefulness of using BMI to indicate AN severity.

The current study is the first to find a positive relationship between engagement in pro-ana communities and positive thoughts and feelings regarding AN and AN-thinness. However, mediating effects were not explored. It would be useful for future research to evaluate the mediating effects of the internalization of pro-ana messages, engagement in pro-ana websites, ED symptomatology, and positive perceptions and desires for the AN diagnosis/AN-thinness on the relationship between any of the investigated variables.

The next steps in this line of research will be to develop an experimental paradigm using random assignment that would test the extent to which mere exposure to a “thinspiration” manipulation affects positive attitudes and the desire to be thin among individuals who know of but have never visited one of these sites. Given the ethical conflict such a design would raise, the experimental manipulation would need to be followed by a prevention intervention aimed to reduce the potential negative impact of exposure.

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**Table 1.***Pro-Ana Engagement Questionnaire (PAE-Q)*

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1. Before this study, I already knew that these websites existed.
2. How did you learn about these websites?
3. Have you ever visited an online pro-ana community website?
4. Have you visited an online pro-ana community website in the last 12 months?
5. In how many of the last 12 months did you visit a pro-ana website?
6. Have you visited an online pro-ana community website in the last 30 days?
7. On how many of the last 30 days did you visit a pro-ana website?
8. In the average month that you visited, on how many weeks did you visit these websites?
9. In the average week that you visited, on how many days did you visit these websites?
10. In the average day that you visited, how many times did you visit these websites?
11. On average, how long did you spend on these websites per visit?
12. Have you ever visited pro-ana websites more frequently than you indicated above?
13. During the year that you visited pro-ana websites most frequently, on how many months did you visit these websites?
14. In the average month that you visited, on how many weeks did you visit these websites?
15. In the average week that you visited, on how many days did you visit these websites?
16. In the average day that you visited, how many times did you visit these websites?
17. On average, how long did you spend on these websites per visit?
18. What is the most time you have ever spent in a single sitting looking at pro-ana websites?
19. When you visit these websites, what do you do? (mark all that apply)
20. Do you follow other members of pro-ana communities on social media?
21. About how many members of pro-ana communities do you follow on social media?  
(Instagram, Twitter, etc.)
22. Do other members of pro-ana communities follow you on social media?

23. About how many members of pro-ana communities follow you on social media? (Instagram, Twitter, etc.)
24. Have you made friends via online pro-ana community websites?
25. About how many members of pro-ana communities have you made friends with via the sites?
26. About how many different pro-ana websites have you visited in your lifetime?
27. About how many different pro-ana websites do you currently visit with relative frequency?
28. Which pro-ana websites do you visit most frequently? (write their names)
29. For how many pro-ana websites do you have a username and a log in?
30. About what percentage of people around your age do you believe know about these websites?
31. About what percentage of people around your age do you believe have visited these websites in the last 30 days?
32. About what percentage of people your age do you believe visit these websites daily or almost daily?

**Table 2.***Perceptions and Desires for AN diagnosis and AN-thinness (PANDT)*

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1. Being diagnosed with anorexia would prove to me that my eating and body struggles were real and valid.
2. If I was diagnosed with anorexia, I would feel accomplished.
3. Being diagnosed with anorexia is one of my goals.
4. I feel that people who have been diagnosed with anorexia have achieved something difficult and worthwhile.
5. I perceive people who have been diagnosed with anorexia as more perfect than those who have not.
6. To me, being diagnosed with anorexia means a person is more powerful.
7. I admire those who have been diagnosed with anorexia because they meet the criteria for diagnosis.
8. I feel that anorexia is desirable because of the low body weight criterion.
9. Being as thin as someone who is anorexic would prove to me that my eating and body struggles were real and valid.
10. If I was so thin that I looked anorexic, I would feel accomplished.
11. Having the body of someone who is anorexic is one of my goals.
12. I would like to be so thin that my friends wonder if I am anorexic.
13. Not being as thin as someone with anorexia nervosa makes me feel shame.
14. I am jealous of the bodies of people with anorexia.
15. Being extremely thin is an achievement that I admire.

**Table 3.***Correlations*

	1	2	3	4	5	6	7
1. Eating Concern	--						
2. Restraint	.642**	--					
3. Weight Concern	.786**	.651**	--				
4. Shape Concern	.806**	.650**	.954**	--			
5. EDE-Q Total Score	.889**	.805**	.951**	.956**	--		
6. PANDT Total Score	.619**	.591**	.533**	.547**	.628**	--	
7. BMI	0.087	0.086	.385**	.321**	.259**	0.121	--

\*\* Correlation is significant at the 0.01 level (2-tailed).