



# Eating Disorders

## The Journal of Treatment & Prevention

ISSN: (Print) (Online) Journal homepage: <https://www.tandfonline.com/loi/uedi20>

## Last word: a call to view temperamental traits as dual vulnerabilities and strengths in anorexia nervosa

Heather Hower, Erin E. Reilly, Christina E. Wierenga & Walter H. Kaye

To cite this article: Heather Hower, Erin E. Reilly, Christina E. Wierenga & Walter H. Kaye (2021): Last word: a call to view temperamental traits as dual vulnerabilities and strengths in anorexia nervosa, *Eating Disorders*, DOI: [10.1080/10640266.2021.1883882](https://doi.org/10.1080/10640266.2021.1883882)

To link to this article: <https://doi.org/10.1080/10640266.2021.1883882>



Published online: 21 Mar 2021.



Submit your article to this journal [↗](#)



Article views: 11



View related articles [↗](#)



View Crossmark data [↗](#)



## Last word: a call to view temperamental traits as dual vulnerabilities and strengths in anorexia nervosa

Heather Hower <sup>a,b,c</sup>, Erin E. Reilly <sup>c,d</sup>, Christina E. Wierenga <sup>c,e</sup>,  
and Walter H. Kaye <sup>c</sup>

<sup>a</sup>Department of Psychiatry and Human Behavior, Warren Alpert Medical School, Brown University, Providence, Rhode Island, USA; <sup>b</sup>Department of Health Services, Policy, and Practice, School of Public Health, Brown University, Providence, Rhode Island, USA; <sup>c</sup>Department of Psychiatry, Medical School, University of California at San Diego, San Diego, California, USA; <sup>d</sup>Department of Clinical Psychology, Hofstra University, Hempstead, New York, USA; <sup>e</sup>VA San Diego Healthcare System, San Diego, California, USA

### ABSTRACT

Research suggests that individuals with anorexia nervosa (AN) have certain temperamental traits (e.g. perfectionism, anxiety, harm avoidance), which often onset prior to the eating disorder (ED), and may persist following recovery. Although these traits are often represented as vulnerabilities to developing an ED, there is reason to believe that within certain contexts, these traits may serve as assets. We propose that traits can be harnessed within or outside of treatment to promote long-term success, and possibly relate to recovery. To do so, the current paper will: (1) outline literature on traits viewed as strengths; (2) review precedents for strengths-based interventions drawing from other areas of research; (3) propose a framework for future research to assess these strengths in AN; and (4) discuss the implications of the proposed research for the destigmatization of EDs. This last word calls for a shift to a dual consideration of traits as vulnerabilities and strengths.

### Clinical implications

- Anorexia nervosa (AN) is associated with a range of overcontrolled temperament traits
- Temperament traits are often viewed as vulnerabilities to developing AN
- We outline a hypothesis that these traits can be used adaptively to achieve success
- Future research is necessary to test hypotheses that these traits relate to adaptive outcomes

Research suggests that individuals with anorexia nervosa (AN) tend to have specific childhood temperament traits, which individuals often report were present prior to the onset of the eating disorder (ED) and persist in recovery (Atiye et al., 2015). For instance, there is a considerable body of literature showing that

**CONTACT** Heather Hower  [Heather\\_Hower@Brown.edu](mailto:Heather_Hower@Brown.edu)  Department of Psychiatry and Human Behavior, Warren Alpert Medical School, Brown University, Providence, Rhode Island, USA.

perfectionism, with an over-emphasis on self-imposed standards, is commonly linked with AN (Lampard et al., 2012). High levels of anxiety, attention to detail, order, exactness, and symmetry, and sensitivity to punishment are often elevated in AN, independent of nutritional status (Harrison et al., 2010; Wagner et al., 2006). Impaired set-shifting, including rigid responses to changing rules, elevated perseverative responses, and preference for routine, indicate that cognitive inflexibility may also represent a trait marker of AN (Roberts et al., 2010). Harm avoidance, or low risk-taking, combining features of anxiety, inhibition, and inflexibility, are also heightened in AN (Fassino et al., 2004).

Within models of ED risk, these temperamental traits are thought to represent nonspecific vulnerabilities that likely interact with other risk processes to promote onset and maintenance of symptoms (e.g. Wade et al., 2015). For instance, an individual who begins engaging in restrictive behaviors due to environmental factors and is also perfectionistic may begin to set higher and higher standards for their caloric intake and become persistent in their striving to reach weight-loss goals. Further, it is often hypothesized that many of these traits, which are linked to neurobiological processes, facilitate continued persistence in food restriction due to the perceived threat of weight gain and despite negative consequences (Kaye et al., 2013). For example, individuals who have trouble with set-shifting and have identified a specific “weight goal” during periods of symptom exacerbation may experience challenges shifting to a recovery mindset and halting restriction. Altogether, consistent data support the idea that AN is associated with specific temperamental traits, and much of the existing dialogue regarding these findings has focused on the ways in which these traits may interact with other factors to increase the risk for or maintenance of symptoms.

Given data suggesting poor outcomes for many individuals who receive evidence-based treatments for EDs and long courses of illness (Keel & Brown, 2010; Watson & Bulik, 2013), there has been increasing interest in better characterizing factors that predict course, adaptive and maladaptive outcomes, and recovery in AN. For example, recent studies have indicated that elevated trait anxiety (Zerwas et al., 2013) and a diagnosis of major depression (Franko et al., 2018) were both associated with a decreased likelihood of recovery at long-term follow-up. However, outside of one recent study suggesting that higher levels of perfectionism were associated with better outcome at 30-year follow-up (Dobrescu et al., 2020), few studies have explored whether temperament traits predict the outcome.

When considering how temperamental traits fit into emerging models of risk, maintenance, and recovery of symptoms, the question emerges: if the temperamental traits described above are risk factors for AN and persist after recovery (Wagner et al., 2006), then how do people recover? Our group has completed many studies on individuals who are recovered from AN. We have observed that while these individuals often continue to endorse elevations in temperamental

traits like harm avoidance and perfectionism, many of these individuals are highly successful. Therefore, we hypothesize that individuals with AN learn to use certain personality and temperament traits—such as achievement, self-discipline, perfectionism, and organization—in constructive, advantageous ways.

How might temperamental traits be linked with achievement and other adaptive outcomes? In the educational domain, such traits may facilitate earning high grades, honors, and graduate degrees. In the occupational domain, they may lead to high-quality work, promotions, and leadership positions. For those participating in the athletic domain, achievement-oriented traits could lead to elite athletic performance, involving highly competitive motivation, and resulting in achieving athletic records. In the everyday relationship domain, the traits of sensitivity to the emotions of others and cooperation, tend to draw others towards those with AN, as they seem to be more in tuned with others' needs and are “team players.” Achievement in multiple domains is facilitated by the determination to pursue identified goals and to persist despite multiple obstacles.

Overall, while it is possible that traits associated with eating pathology are also linked to adaptation and thriving in contexts outside of eating and weight, these possibilities have yet to be tested empirically on a broader scale. Moreover, strengths-based approaches and discussion of positive qualities or temperamental traits are often not included within existing treatment manuals for AN; existing treatments that address one or more of these traits focus on these qualities may predispose an individual to develop and maintain AN symptoms. Therefore, drawing on research in other fields that documents benefits of these temperamental traits and personalizing treatment to an individual's strengths and temperament, we propose that a shift towards a dual consideration of the AN temperamental traits as both vulnerabilities *and* potential strengths could provide a more complete account of the commonly observed success in clinical samples, decrease ED-related stigma, and even result in new treatment techniques. Moreover, considering data suggesting the consistency of personality traits over time, we propose that exploring the utility of personalizing AN treatments using an individual's temperamental characteristics would encourage individuals to seek out adaptive contexts for manifesting traits long-term and promote positive outcomes.

### **Precedent for strengths-based, personalized treatment**

There are several areas of research outside of EDs that provide initial support for benefits of specific temperamental traits and shifting emphasis to strengths more generally, as well as feasibility and effectiveness of strengths- and temperament-based, individualized treatment. In the following sections, we will briefly explore four differing areas of research that provide initial precedent or data for how AN temperamental characteristics may be conceptualized as strengths and used to personalize intervention approaches.

**Area 1: Existing Data on Benefits of AN Temperamental Traits.** Although no studies to date have explored temperamental traits as conferring benefits specifically within ED populations, some of the traits commonly associated with AN have been denoted as beneficial in other areas of research and in different populations. For instance, the well-known Yerkes-Dodson law suggests that moderate levels of anxiety may enhance performance and learning across certain tasks (Yerkes & Dodson, 1908). Additionally, there is a robust literature documenting that specific aspects of perfectionism are linked with achievement, subjective well-being, and meaning in life (Stoeber & Otto, 2006). Drawing from this data, it could be the case that the state- and trait-based influences that characterize the AN temperament confer benefits within the correct context, although this possibility has yet to be tested directly.

**Area 2: Positive Psychology.** In shifting to a conceptualization of AN temperamental characteristics as vulnerabilities to potential strengths, it may also be helpful to reference positive psychology, which moves from an exclusive focus on dysfunction and risk, to a more explicit focus on positive traits, well-being, and optimal functioning (Duckworth et al., 2005). Treatment targets thus include a decrease in suffering and psychiatric symptoms, *and* an increase in meaning, pleasure, and engagement (Duckworth et al., 2005). Meta-analyses on positive psychology interventions suggest small but durable longitudinal effects on these domains (Bolier et al., 2013). Importantly, existing work in positive psychology references to evidence that negative symptoms and well-being exist on separate dimensions; therefore, simply focusing on decreasing negative outcomes and symptoms does not in and of itself promote adaptation (Mira et al., 2018). Therefore, applying for existing work in positive psychology to EDs, it may be fruitful to consider shifting to a dual focus on maladaptive traits alongside increasing areas of strength. Moreover, explicit consideration of ways in which temperamental traits can be used to promote increases in pleasure, engagement, and meaning, could result in enhanced long-term outcomes.

**Area 3: Temperament-Based Treatments in Developmental Psychology.** There is a rich developmental literature on early temperamental traits and their interaction with the environment in promoting adjustment (Rothbart, 2007). The resulting intervention literature emphasizes the need for psychoeducation regarding individual temperamental style, prioritizing “goodness-of-fit” between temperament and environment, and enhancing self-regulatory skills for adapting to environments that represent challenges for given temperamental profiles (McClowry et al., 2008). Applying this work to AN, more explicit education regarding temperamental traits, and prioritizing seeking out environments for which their temperament is an optimal match and may promote success, represent two ways in which the field may draw from this area of research (Kaye et al., 2015).

**Area 4: Personalization of Psychological Treatments.** Finally, personalized delivery of evidence-based psychotherapies offers another area of research that

may be relevant to harnessing temperamental traits as strengths and explicitly personalizing treatment with an individual's temperamental qualities in mind. Specifically, studies have been conducted in MDD and other emotional disorders, exploring whether choosing treatment interventions based on an individual's strengths (i.e. capitalization approach), or relative deficits (i.e. compensatory approach), influences outcomes (Cheavens et al., 2012). Findings from this work support tailoring interventions to an individual's strengths, resulting in a significantly faster rate of change on relevant outcome variables (Cheavens et al., 2012). Altogether, results from this emerging line of study support the assertion that tailoring existing treatment approaches based on relative strengths may result in enhanced intervention results.

### Traits as strengths: research questions related to clinical application

We hypothesize that common AN temperamental traits may help people succeed at work and school (see Table 1). It remains uncertain whether the adaptive or constructive use of traits help people recover from EDs, and this question requires direct empirical testing. It may also be the case that there are certain traits that are associated with recovery, and others associated with chronicity. Existing treatment-related research often does not include or report on assessments of temperamental or personality variables, making it difficult to explore the influence of these variables on recovery and long-term outcomes. We propose directly testing whether shifting toward a dual consideration of temperamental traits as vulnerabilities *and* strengths, rather than only characterizing these traits as vulnerabilities, can help shed light on factors contributing to chronicity or recovery. There are many ways in which researchers may consider doing this, including the selection of measurements of adaptive outcomes for longitudinal work to test links with traits. Currently, many empirical studies and treatment trials focus singularly on symptoms and their remission, rather than

**Table 1.** Examples of ways in which temperamental traits could be linked with achievement.

Anorexia Nervosa Temperamental Traits	Long-Term Successful Outcomes in Life
Perfectionism	Perfectionism is associated with educational accomplishments, including earning high grades, honors, and graduate degrees. Occupationally, it facilitates high quality work, promotions, and leadership positions. Examples of roles that involve perfectionism are: Professors, Scientists, Editors, CEOs.
Self-Discipline	Self-Discipline includes prioritizing long-term vs. short-term life goals, and committing to work routinely to achieve those goals. Examples of roles that involve self-discipline are: Athletes, Medical Students, Graduate School Students, Military Members.
Organization	Organization involves planning, focus, and execution of projects with logical order. Examples of roles that involve organization are: Engineers, Information Technologists, Project Managers, Teachers.
Achievement	Achievement incorporates reaching valued life milestones, which are often noted by others as deserving of recognition. Examples of roles that involve achievement are: Academic Deans, Chief Medical Officer, Law Firm Partners, Administrative Chief of Staff.

measuring positive or adaptive outcomes (e.g. achievement; well-being), making it challenging to explore this hypothesis in existing data. If researchers do find a link between certain temperamental traits and adaptive outcomes in recovery, this type of longitudinal work would also ideally be able to answer the question regarding whether there are any additional variables (e.g. demographic; learning; neurobiological) that predict this shift to recovery (i.e. What characteristics predict a shift in links between perfectionism and symptoms over time?). Finally, it is also possible that further research (both qualitative and quantitative) may be required to develop assessments for capturing the use of temperamental traits in recovery. In addition to considering an individual's traits within the treatment, it may also be helpful to more explicitly incorporate information about traits into prevention programming for EDs. More specifically, prevention programming has received consistent support in the literature as effective for decreasing known risk factors for EDs (Stice et al., 2007); it could be the case that incorporating psychoeducation regarding the temperamental risk for EDs and exercises designed to help participants self-assess and optimize the fit between their temperament and environment would be useful.

It is possible that incorporation of temperamental traits into treatment could be pursued through personalizing treatments according to an individual's temperamental style, such as choosing specific intervention tools that capitalize on an individual's strengths, setting goals that encourage the individual to use strengths in working towards recovery, and optimizing the fit between their personality and their environment. Of note, temperament could be incorporated within existing treatments for EDs or in new treatment approaches.

First, a focus on temperament could be readily implemented within existing treatment approaches, wherein therapists may select therapeutic skills from a manual that are well suited to an individual's temperamental profile, or simply assess for temperamental traits at the beginning of treatment and incorporate these traits into psychoeducation with the patient or in the rationale for skills (e.g. in CBT-E working with the patient to understand how perfectionism may contribute to symptom maintenance, but also discuss the ways in which they can harness perfectionism in their completion of food logs).

On the other hand, treatment approaches that focus more directly on temperamental traits may also be useful. For instance, our group has been developing temperament-based interventions (Kaye et al., 2015) that focus on providing psychoeducation to individuals regarding temperamental styles using data and experiential exercises, along with exploring the ways in which patients and their support systems can tailor behavioral contingencies in their environment to match their temperamental profile. Recent preliminary data suggest that using this approach is feasible, well received, and is associated with decreases in symptoms (Wierenga et al., 2018), but this area of research remains in its infancy.

Related questions within this line of study include when it is effective to attempt to alter the expression of the trait (e.g. promote decreases in

perfectionism), versus when it is more effective to encourage the trait, but in differing domains (e.g. encourage engaging with perfectionism as it relates to a valued goal in the workplace). Finally, another important consideration for this future work is the optimal timing of strengths-based and trait-based interventions. More specifically, are trait-based interventions best administered at the commencement of treatment, or are patients better able to benefit from these interventions following achievement of weight restoration?

### **Implications related to de-stigmatization**

If future research explores the possibility of AN temperamental traits as linked with adaptive outcomes, and incorporates them into personalized interventions, there would be several notable clinical implications, outside of promoting more effective treatments and adaptive outcomes. Specifically, an increased focus on temperamental qualities, the durability of these traits, and their benefits, could facilitate engagement of and empathy in family members and caregivers. Secondly, focusing on links between biologically influenced temperamental traits and adaptive outcomes and recovery, both generally and in the context of treatment, may promote the destigmatization of EDs. Examples from other mental health disorders (e.g. MDD, Attention Deficit Hyperactivity Disorder, and Autism Spectrum Disorders) indicate that valid and reliable research and treatment, along with related advocacy efforts, “legitimizes” these disorders in the eyes of the general public (Corrigan & Shapiro, 2010). Notably, existing data in other psychiatric conditions indicate that medicalizing mental illnesses result in significantly less blame, but depending on the message, may increase pessimism regarding the possibility of recovery or success long term (Kvaale et al., 2013). Our proposed line of research could provide empirical data that may refute patients’ initial assumptions that genetic and biological contributions to their behavioral difficulties mean that interventions will not be successful or meeting long-term goals is not possible, thus decreasing pessimism, and enhancing engagement in treatment.

### **Conclusions**

To date, empirical research has suggested that individuals with AN demonstrate elevations in particular temperamental traits, which may represent a vulnerability factor for the development of AN and often remain stable over time. The present paper proposes that considering contexts in which these traits may be adaptive and shifting toward considering the positive elements of these traits within and outside of treatment could enhance outcomes, and decrease stigma associated with EDs.



- Franko, D. L., Tabri, N., Keshaviah, A., Murray, H. B., Herzog, D. B., Thomas, J. J., & Eddy, K. T. (2018). Predictors of long-term recovery in anorexia nervosa and bulimia nervosa: Data from a 22-year longitudinal study. *Journal of Psychiatric Research*, *96*, 183–188. <https://doi.org/10.1016/j.jpsychires.2017.10.008>
- Harrison, A., O'Brien, N., Lopez, C., & Treasure, J. (2010). Sensitivity to reward and punishment in eating disorders. *Psychiatry Research*, *177*(1–2), 1–11. <https://doi.org/10.1016/j.psychres.2009.06.010>
- Kaye, W. H., Wierenga, C. E., Bailer, U. F., Simmons, A. N., & Bischoff-Grethe, A. (2013). Nothing tastes as good as skinny feels: The neurobiology of anorexia nervosa. *Trends in Neurosciences*, *36*(2), 110–120. <https://doi.org/10.1016/j.tins.2013.01.003>
- Kaye, W. H., Wierenga, C. E., Knatz, S., Liang, J., Boutelle, K., Hill, L., & Eislser, I. (2015). Temperament-based treatment for anorexia nervosa. *European Eating Disorders Review*, *23*(1), 12–18. <https://doi.org/10.1002/erv.2330>
- Keel P, Brown T. Update on course and outcome in eating disorders. *Int J Eat Disord*. 2010;43:195–204
- Kvaale, E. P., Haslam, N., & Gottdiener, W. H. (2013). The ‘side effects’ of medicalization: A meta-analytic review of how biogenetic explanations affect stigma. *Clinical Psychology Review*, *33*(6), 782–794. <https://doi.org/10.1016/j.cpr.2013.06.002>
- Lampard, A. M., Byrne, S. M., McLean, N., & Fursland, A. (2012). The eating disorder inventory-2 perfectionism scale: Factor structure and associations with dietary restraint and weight and shape concern in eating disorders. *Eating Behaviors*, *13*(1), 49–53. <https://doi.org/10.1016/j.eatbeh.2011.09.007>
- McClowry, S. G., Rodriguez, E. T., & Koslowitz, R. (2008). Temperament-based intervention: Re-examining goodness of fit. *International Journal of Developmental Science*, *2*(1–2), 120–135. <https://doi.org/10.3233/DEV-2008-21208>
- Mira, A., Bretón-López, J., Enrique, Á., Castilla, D., García-Palacios, A., Baños, R., & Botella, C. (2018). Exploring the incorporation of a positive psychology component in a cognitive behavioral internet-based program for depressive symptoms. results throughout the intervention process. *Frontiers in Psychology*, *9*. <https://doi.org/10.3389/fpsyg.2018.02360>
- Roberts, M. E., Tchanturia, K., & Treasure, J. L. (2010). Exploring the neurocognitive signature of poor set-shifting in anorexia and bulimia nervosa. *Journal of Psychiatric Research*, *44*(14), 964–970. <https://doi.org/10.1016/j.jpsychires.2010.03.001>
- Rothbart, M. K. (2007). Temperament, development, and personality. *Current Directions in Psychological Science*, *16*(4), 207–212. <https://doi.org/10.1111/j.1467-8721.2007.00505.x>
- Stice, E., Shaw, H., & Marti, C. N. (2007). A meta-analytic review of eating disorder prevention programs: Encouraging findings. *Annual Review of Clinical Psychology*, *3*(1), 207–231. <https://doi.org/10.1146/annurev.clinpsy.3.022806.091447>
- Stoeber, J., & Otto, K. (2006). Positive conceptions of perfectionism: Approaches, evidence, challenges. *Personality and Social Psychology Review*, *10*(4), 295–319. [https://doi.org/10.1207/s15327957pspr1004\\_2](https://doi.org/10.1207/s15327957pspr1004_2)
- Wade, T. D., Wilksch, S. M., Paxton, S. J., Byrne, S. M., & Austin, S. B. (2015). How perfectionism and ineffectiveness influence growth of eating disorder risk in young adolescent girls. *Behaviour Research and Therapy*, *66*, 56–63. <https://doi.org/10.1016/j.brat.2015.01.007>
- Wagner, A., Barbarich-Marsteler, N. C., Frank, G. K., Bailer, U. F., Wonderlich, S. A., Crosby, R. D., & Kaye, W. H. (2006). Personality traits after recovery from eating disorders: Do subtypes differ? *International Journal of Eating Disorders*, *39*(4), 276–284. <https://doi.org/10.1002/eat.20251>

- Watson, H. J., & Bulik, C. M. (2013). Update on the treatment of anorexia nervosa: Review of clinical trials, practice guidelines and emerging interventions. *Psychological Medicine, 43* (12), 2477–2500. <https://doi.org/10.1017/S0033291712002620>
- Wierenga, C. E., Hill, L., Peck, S. K., McCray, J., Greathouse, L., Peterson, D., & Kaye, W. H. (2018). The acceptability, feasibility, and possible benefits of a neurobiologically-informed 5-day multifamily treatment for adults with anorexia nervosa. *International Journal of Eating Disorders, 51*(8), 863–869. <https://doi.org/10.1002/eat.22876>
- Yerkes, R. M., & Dodson, J. D. (1908). The relation of strength of stimulus to rapidity of habit-formation. *Journal of Comparative Neurology and Psychology, 18*(5), 459–482. <https://doi.org/10.1002/cne.920180503>
- Zerwas, S., Lund, B. C., Von Holle, A., Thornton, L. M., Berrettini, W. H., Brandt, H., & Bulik, C. M. (2013). Factors associated with recovery from anorexia nervosa. *Journal of Psychiatric Research, 47*(7), 972–979. <https://doi.org/10.1016/j.jpsychires.2013.02.011>