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Moving Beyond “Skinniness”: Presentation Weight Is Not Sufficient to Assess Malnutrition in Patients With Restrictive Eating Disorders Across a Range of Body Weights

Andrea K. Garber, Ph.D., R.D.

Division of Adolescent and Young Adult Medicine, Department of Pediatrics, University of California San Francisco, and Benioff Children's Hospital, San Francisco, California

The face of anorexia nervosa (AN) is changing, with a large and growing number of atypical patients. Atypical anorexia nervosa (AAN) describes patients with significant weight loss who meet the criteria for AN but are not underweight [1]. A few available studies of AAN describe this group as largely overweight or obese prior to illness [2] and inclusive of more boys and lower socioeconomic status youth [3]. While they are not technically underweight, patients with AAN present for care with marked malnutrition. In fact, medical instability in AAN appears to be just as severe [2] or worse [4] than AN. As a result, eating disorder programs providing acute care and/or medical stabilization have reported a rapid growth in their AAN population [5], which may now comprise up to one third of the inpatient volume [6].

Recognition that malnutrition occurs at all weights and sizes has challenged our historical reliance on weight as a primary indicator of degree of malnutrition. To address this challenge, the American Academy of Pediatrics, American Society for Parenteral and Enteral Nutrition, Academy of Nutrition and Dietetics and our own Society for Adolescent Health and Medicine have all recommended including percent of weight loss in the assessment of malnutrition [7–9]. Percentage or magnitude of body weight loss, also called “weight suppression,” has emerged from the adult eating disorder literature as an important indicator of the severity of illness in AN.

In this issue of the *Journal of Adolescent Health*, Whitelaw et al examined weight loss as a marker of illness severity in adolescents with restrictive eating disorders [10]. Study participants were 171 adolescents age 12–19 on their first admission to hospital with malnutrition secondary to AN or AAN. The authors utilized changes in body mass index (BMI) z-score (rather than total or percent of weight loss), to account for potential changes in linear height during adolescence and allow weight changes to be compared across age and sex. They found that greater total and recent weight loss were stronger predictors of aberrant vital signs (bradycardia and hypotension) than admission weight. This finding has major healthcare implications, given that these vital signs comprise the hospitalization criteria for adolescents with restrictive eating disorders [11]. In conjunction with lower admission weight, they found that total weight loss predicted risk for the refeeding syndrome (i.e.,

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low serum phosphate) and longer hospital admission. In fact, lower admission weight was not independently predictive of any outcome. This notable finding extends the collective literature, which previously supported low admission weight alone as the strongest predictor of refeeding hypophosphatemia [12].

The inclusion of cognitive testing along with a full spectrum of medical and nutritional indicators of malnutrition is unique to this study and sets a high standard for transdisciplinary research. The authors found that greater recent weight loss predicted worse eating disorder psychopathology. This finding is supported by adult studies showing that greater weight suppression is associated with worse eating disorder psychopathology independent of BMI [13,14], and one recent case series of adolescents with AAN [15]. However, the specific identification of recent weight loss as a predictor has a critical clinical implication. As the authors point out, clinicians should intervene swiftly in patients with dramatic weight loss, not wait until a lower threshold of thinness is achieved. Demonstration of the association between weight loss and eating disorder cognitions across a range of body weights is also critical for combatting the dangerous thinking that AAN is not an illness, but a diet gone wrong. This belief is not only held by patients, but by parents and clinicians who seek to support young peoples' weight loss efforts and inadvertently collude with the illness.

While the study by Whitelaw et al. in this issue of the Journal of Adolescent health is groundbreaking in its own time, it speaks to an age-old sentiment. As Ralph Waldo Emerson once said, "It's the not the destination, it's the journey." For too long, we have depended on presentation weight to guide our clinical concern in patients with restrictive eating disorders. Indeed, low presentation weight is an evidenced-based predictor of risk in AN [12]. However, it is based on a body of evidence that does not fully represent the diversity in shape, size, race, ethnicity, and gender of our patient population today. Whitelaw et al. have been at the fore-front of describing and treating this diverse population [2,5]; now they have provided tools for assessment in line with the current recommendations [7–9]. Future research should build upon this work to identify other markers of malnutrition that are independent of weight, such as metabolic [16] and neuroendocrine [17,18] adaptations to starvation, as well as alterations in body composition [19,20]. Until then, total and recent weight loss (as change in BMI z-score) can be utilized in patients of all weights and diagnoses. This will necessitate the collection of better historical growth data and weight history, which is consistent with our larger focus on continuity and preventive care in the field of adolescent and young adult medicine.

References

- [1]. American Psychiatric Association 2013. Diagnostic and statistical manual of mental disorders. 5th ed. Arlington, VA: American Psychiatric Publishing.
- [2]. Sawyer SM, Whitelaw M, Le Grange D, et al. Physical and psychological morbidity in adolescents with atypical anorexia nervosa. *Pediatrics* 2016;137:e20154080. [PubMed: 27025958]
- [3]. Ornstein RM, Rosen DS, Mammel KA, et al. Distribution of eating disorders in children and adolescents using the proposed DSM-5 criteria for feeding and eating disorders. *J Adolesc Health* 2013;53:303–5. [PubMed: 23684215]
- [4]. Peebles R, Hardy KK, Wilson JL, Lock JD. Are diagnostic criteria for eating disorders markers of medical severity? *Pediatrics* 2010;125:e1193–201. [PubMed: 20385643]

- [5]. Whitelaw M, Gilbertson H, Lee KJ, Sawyer SM. Restrictive eating disorders among adolescent inpatients. *Pediatrics* 2014;134:e758–64. [PubMed: 25157005]
- [6]. Peebles R, Lesser A, Park CC, Heckert K, et al. Outcomes of an inpatient medical nutritional rehabilitation protocol in children and adolescents with eating disorders. *J Eat Disord* 2017;5:7. [PubMed: 28265411]
- [7]. Mehta NM, Corkins MR, Lyman B, et al. Defining pediatric malnutrition: a paradigm shift toward etiology-related definitions. *J Parenter Enteral Nutr* 2013;37:460–81.
- [8]. Golden NH, Katzman DK, Sawyer SM, et al. Position Paper of the Society for Adolescent Health and Medicine: Medical management of restrictive eating disorders in adolescents and young adults. *J Adolesc Health* 2015;56:121–5. [PubMed: 25530605]
- [9]. American Academy of Pediatrics. Statement of endorsement: Defining pediatric malnutrition. *Pediatrics* 2013;132:e283.
- [10]. Whitelaw M, Lee KY, Gilbertson H, Sawyer SM. Predictors of complications in anorexia nervosa and atypical anorexia nervosa: degree of underweight or extent and recency of weight loss? *J Adolesc Health* 2018;63:717–23. [PubMed: 30454732]
- [11]. Golden NH, Katzman DK, Sawyer SM, et al. Update on the medical management of eating disorders in adolescents. *J Adolesc Health* 2015;56:370–5. [PubMed: 25659201]
- [12]. Society for Adolescent H, Medicine. Refeeding hypophosphatemia in hospitalized adolescents with anorexia nervosa: a position statement of the Society for Adolescent Health and Medicine. *J Adolesc Health* 2014;55:455–7. [PubMed: 25151056]
- [13]. Lavender JM, Shaw JA, Crosby RD, et al. Associations between weight suppression and dimensions of eating disorder psychopathology in a multisite sample. *J Psychiatr Res* 2015;69:87–93. [PubMed: 26343599]
- [14]. Berner LA, Shaw JA, Witt AA, Lowe MR. The relation of weight suppression and body mass index to symptomatology and treatment response in anorexia nervosa. *J Abnorm Psychol* 2013;122:694–708. [PubMed: 24016010]
- [15]. Hughes EK, Le Grange D, Court A, Sawyer SM. A case series of family-based treatment for adolescents with atypical anorexia nervosa. *Int J Eat Disord* 2017;50:424–32. [PubMed: 28093790]
- [16]. Aschettino-Manevitz DL, Ornstein RM, Meyer Sterling W, et al. Triiodothyronine (T3) and metabolic rate in adolescents with eating disorders: Is there a correlation? *Eat Weight Disord* 2012;17:e252–8. [PubMed: 23221424]
- [17]. Seetharaman S, Golden NH, Halpern-Felsher B, et al. Effect of a prior history of overweight on return of menses in adolescents with eating disorders. *J Adolesc Health* 2017;60:469–71. [PubMed: 27998699]
- [18]. Misra M, Klibanski A. Neuroendocrine consequences of anorexia nervosa in adolescents. *Endocr Dev* 2010;17:197–214. [PubMed: 19955768]
- [19]. El Ghoch M, Milanese C, Calugi S, et al. Regional fat distribution in adolescent and adult females with anorexia nervosa: A longitudinal study. *Clin Nutr* 2015;34:1224–32. [PubMed: 25559944]
- [20]. Misra M, Miller KK, Almazan C, Worley M, Herzog DB, Klibanski A. Hormonal determinants of regional body composition in adolescent girls with anorexia nervosa and controls. *J Clin Endocrinol Metab* 2005;90:2580–7. [PubMed: 15713709]