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Binge Eating at the Start of a Pediatric Weight Management Program

Ian S. Zenlea, MD^{1,2}, E. Thomaseo Burton, PhD, MPH³, Nissa Askins, MPH¹, Carly E. Milliren, MPH⁵, Heather Thompson-Brenner, PhD⁶, and Erinn T. Rhodes, MD, MPH^{1,2}

¹Division of Endocrinology, Boston Children's Hospital, Boston, MA

²Department of Pediatrics, Harvard Medical School, Boston, MA

³Division of Adolescent and Young Adult Medicine, Boston Children's Hospital, Boston, MA

⁴Department of Psychiatry, Harvard Medical School, Boston, MA

⁵Clinical Research Center, Boston Children's Hospital, Boston, MA

⁶Center for Anxiety & Related Disorders, Boston University, Boston, MA

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INTRODUCTION

Obese youth are at increased risk for binge eating, which is associated with the development of full-syndrome binge eating disorder (BED) and further weight gain.^{1,2} Binge eating

Address correspondence to: Ian S. Zenlea, MD; Division of Endocrinology, Boston Children's Hospital Boston, 333 Longwood Ave. 6th Floor, Boston, MA, 02115; Telephone: 857-218-5394; Fax: 617-730-0194; Ian.Zenlea@childrens.harvard.edu.

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Contributor's Statement:

Ian S. Zenlea: Dr. Zenlea contributed to the study conception and design; data acquisition, analysis, and interpretation; initial drafting of the manuscript and critical revision; and final approval of the submitted manuscript.

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behavior can negatively impact the outcomes of pediatric weight management programs.³ Binge eating is also associated with symptoms of depression and anxiety in overweight and obese adolescents.⁴

The Optimal Weight for Life Program at Boston Children's Hospital, a multidisciplinary stage 3 pediatric weight management program, undertook a clinical quality improvement (QI) project to better understand the behavioral and mental health problems that challenge newly referred families and could potentially pose barriers to successful program participation. The QI project targeted all newly referred patients and provided a program orientation and screening for significant psychosocial stressors and acute mental health problems (including BED). This study adds to the limited extant literature by further describing the outcomes of routine BED screening in newly referred treatment-seeking youth, which could have important treatment implications.

METHODS

This was a retrospective review of data collected during a clinical QI project targeted at newly referred patients who participated in a program orientation from May 1 – October 31, 2012 and completed BED screening. Patient characteristics abstracted from the medical record included age, sex, race, language, body mass index (BMI), BMI percentile and z-score, and insurance. Age- and sex-specific BMI categories were overweight 85th–94.9th percentile; obese 95th percentile; and severely obese 99th percentile.

For BED screening, caregivers of youth aged 6 to 18 years completed the Questionnaire on Eating and Weight Patterns Parent Version (QEWP-P)⁵, and youth aged 11-18 years completed the QEWP Adolescent Version (QEWP-A).⁵ The QEWP-A and QEWP-P assess overeating and can identify eating disorders as outlined in the Diagnostic and Statistical Manual of Mental Disorders, 4th edition-Text Revision.⁶ Based on responses, youth were classified as: 1) BED; 2) nonclinical binge eating (NCB); 3) possible bulimia nervosa (BN); 4) other diagnosis (OD); or 5) no diagnosis (ND).^{5,6} Criteria for BED included objective overeating, loss of control, marked distress, 2 binge episodes per week for 6 months, 3 associated behaviors (e.g. rapid eating or disgust with self), and no compensatory behaviors (e.g. purging or restricting). NCB required the presence of objective overeating with the absence of compensatory behaviors and was further subcategorized as: 1) episodic overeating; 2) binge eating; 3) binge eating syndrome; and 4) binge eating syndrome with distress.^{5,6} Patients with objective overeating, loss of control, and purging were classified as possible BN. Patients were classified as OD if criteria were not met for the other categories.^{5,6} ND was the absence of objective overeating, distress, and compensatory behaviors.^{5,6} Patients could not be classified if questionnaires were incomplete.

Descriptive statistics are presented as proportions or mean $\pm$ SD. The relationships between patient characteristics and eating disorder classification were assessed with Chi-square and Student's t-tests. Concordance between QEWP-A and QEWP-P classification was examined using the McNemar chi-square test. SAS version 9.3 (SAS Institute, Inc, Cary, NC) was used for analysis. The Boston Children's Hospital Institutional Review Board approved the study.

RESULTS

From May 1 to October 31, 2012, 223 patients aged 6 to 18 years were eligible for screening. Data were unavailable for 5 patients. For the remaining 218 patients, mean age was 12.2 ± 3.2 years old, 60.6% were female, 40.8% were white, 90.2% were English speaking, and were 51.8% privately insured. Mean BMI z score was 2.3 ± 0.4 and 49.1% were severely obese.

By complete QEWP-A report (N = 102, 74.5% of 137 available), 2 (2.0%) adolescents met criteria for BED, 16 (15.7%) for NCB, and 5 (4.9%) for possible BN (Table 1). By complete QEWP-P report (N = 135, 61.9% of 218 available), 9 (6.7%) youth met criteria for BED, 48 (35.6%) for NCB, and 4 (3.0%) for possible BN. There were 60 adolescents for whom both the QEWP-A and QEWP-P were complete. Classification based on the two instruments was not statistically different ($P = 0.5$), but demonstrated only fair agreement ($\kappa = 0.3$) (Table 2). Bivariate analyses revealed no associations between patient characteristics (age, sex, race, language, BMI, BMI percentile and z-score, insurance) and eating disorder classification by either the QEWP-A or QEWP-P (data not shown).

DISCUSSION

This study was conducted to assess the prevalence of BED in newly referred youth seeking treatment for overweight/obesity. Several youth met criteria for BED by caregiver (N=9; 6.7%) or self-report (N=2; 2.0%). A greater proportion of youth met criteria for NCB by caregiver-report than self-report (42.2% vs. 17.7%). Several youth also met criteria for possible BN by caregiver (N=4; 3.0%) and self-report (N=5; 4.9%), which is concerning given that weight-control behaviors predict persistence of overweight and obesity.² Although assessing binge eating behaviors by questionnaire may produce higher prevalence estimates than interview methods⁷, the prevalence of disordered eating behavior observed in our study was consistent with other studies that used both questionnaire and interview-based instruments^{4,8}. We did not find that BED and NCB were associated with patient characteristics. In post hoc analyses, NCB was also not associated with problem behaviors as measured by a behavioral screening questionnaire (data not shown).

There was only fair agreement in classification by QEWP-A and QEWP-P scores although the numbers of adolescents in each diagnostic category were not statistically different. Prior studies assessing eating disorder symptoms have also shown proxy and self-report reports to be discordant.^{5,9} The imperfect agreement speaks to the importance of incorporating both self and caregiver-reports, which likely measure different aspects of binge eating symptoms and provide a more complete picture.^{5,9}

Our study is limited by missing items on the QEWP-P and QEWP-A, which prevented scoring for all patients and could have impacted our prevalence estimates. However, for the QEWP-A, there were no differences between patients with complete and incomplete questionnaires for any patient characteristics. Patients with complete QEWP-P questionnaires were younger than patients without complete reports. Given that age was not associated with eating disorder classification, it is unlikely that the additional data would

have significantly altered our results. Since the purpose was to screen for BED, but not formally diagnose the condition, we also do not have data regarding the true prevalence.

Screening for binge eating disorder in the setting of a clinical QI project was feasible and the use of caregiver- and self-reports provided a comprehensive picture with implications for weight management success. The relatively high prevalence of binge eating symptoms within our sample of treatment-seeking youth raises broader concerns for the presence of these symptoms among those youth who have not yet initiated treatment in a weight management program. Since weight management begins in the primary care setting, early detection of such symptoms is important not only because of their co-occurrence with potentially debilitating conditions such as anxiety and depression, but that these symptoms are predictive of future weight gain and the development of full-syndrome eating disorders.

The American Academy of Pediatrics Committee on Adolescence has recognized this imperative and recommends that primary care pediatric clinicians screen for eating disorders as part of annual health supervision or even during pre-participation sports examinations of all preteens and adolescents.¹⁰ Recommendations include monitoring weight and height longitudinally, paying careful attention to potential signs and symptoms of disordered eating, and asking questions about eating patterns and body image.¹⁰

Routinely screening for eating disorder symptoms in the primary care setting could result in earlier detection of disordered eating behaviors, enhanced collaboration between primary care clinicians within patient-centered medical homes and specialists within multidisciplinary pediatric weight management programs, and improved weight management outcomes.

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Table 1

Questionnaire on Eating and Weight Patterns (QEWP) Classification

Classification	QEWP-A* (N=102) N (%)	QEWP-P† (N=135) N (%)	QEWP Items
Episodic overeating	9 (8.8)	23 (17.0)	1b+, 8–, 9–, 10–, 11–, 12–
Binge Eating	4 (3.9)	11 (8.1)	1b+, 2+, 8–, 9–, 10–, 11–, 12–
Binge Eating Syndrome	3 (2.9)	13 (9.6)	1b+, 2+, 4+, 8–, 9–, 10–, 11–, 12–
Binge Eating Syndrome and distress	0 (0)	1 (0.7)	1b+, 2+, 4+, 5+, 6+, 8–, 9–, 10–, 11–, 12–
Binge Eating Disorder	2 (2.0)	9 (6.7)	1b+, 2+, 3+, 4+, 5+, 6+, 8–, 9–, 10–, 11–, 12–
Possible Bulimia Nervosa	5 (4.9)	4 (3.0)	1b+, 2+, 8+, 9+
Other Diagnosis	6 (5.9)	1 (0.7)	Not meeting criteria for other categories‡
No Diagnosis	73 (71.6)	73 (54.1)	Absence of all criteria

* Questionnaire on Eating and Weight Patterns Adolescent Version

† Questionnaire on Eating and Weight Patterns Parent Version

‡ e.g. Objective overeating (1b+) without loss of control (2–) but with compensatory behaviors (8+ or 9+)

The (–) sign indicates that the items must be answered negatively to qualify.

The (+) sign indicates that the items must be answered positively to qualify.

Table 2

Distribution of 60 Adolescents with Complete QEWP-A and QEWP-P Reports by Diagnostic Category.

	QEWP-A*					QEWP-P†	
	Non-Clinical Binge	Binge Eating Disorder	Possible Bulimia Nervosa	Other Diagnoses	No Diagnoses	Total	% Agreement
Non-Clinical Binge	7	0	0	0	4	11	64
Binge Eating Disorder	0	0	1	0	0	1	0
Possible Bulimia Nervosa	0	0	0	1	1	2	0
Other Diagnosis	3	0	0	0	1	4	0
No Diagnosis	9	1	2	0	30	42	71
Total	19	1	3	1	36	60	

* Questionnaire on Eating and Weight Patterns Adolescent Version

† Questionnaire on Eating and Weight Patterns Parent Version