

Childhood Maltreatment in Extremely Obese Male and Female Bariatric Surgery Candidates

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Abstract

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Objective: To examine rates of self-reported childhood maltreatment in extremely obese bariatric surgery candidates and to explore associations with sex, eating disorder features, and psychological functioning.

Research Methods and Procedures: Three hundred forty (58 men and 282 women) extremely obese consecutive candidates for gastric bypass surgery completed a questionnaire battery. The Childhood Trauma Questionnaire was given to assess childhood maltreatment.

Results: Overall, 69% of patients self-reported childhood maltreatment: 46% reported emotional abuse, 29% reported physical abuse, 32% reported sexual abuse, 49% reported emotional neglect, and 32% reported physical neglect. Except for higher rates of emotional abuse reported by women, different forms of maltreatment did not differ significantly by sex. Different forms of maltreatment were generally not associated with binge eating, current BMI, or eating disorder features. At the Bonferonni-corrected significance level, emotional abuse was associated with higher eating concerns and body dissatisfaction, and emotional neglect was associated with higher eating concerns. In terms of psychological functioning, at the Bonferonni-corrected level, emotional abuse and emotional neglect were associated with

higher depression and lower self-esteem, and physical abuse was associated with higher depression.

Discussion: Extremely obese bariatric surgery candidates reported rates of maltreatment comparable with those reported by clinical groups and roughly two to three times higher than normative community samples. Reported experiences of maltreatment differed little by sex and were generally not significantly associated with current BMI, binge eating, or eating disorder features. In contrast, maltreatment— notably emotional abuse and neglect—were significantly associated with higher depression and lower self-esteem.

Key words: bariatric surgery, binge eating, eating disorders, childhood abuse, neglect

Introduction

The potential impact of childhood maltreatment experiences for obesity and disordered eating is unknown. Whereas complex genetic and environmental (familial and nonfamilial) experiences influence obesity (1), relatively few studies have examined the impact of childhood maltreatment on the development or expression of obesity. Two large-scale studies reported that various forms of childhood abuse (2) and parental neglect during childhood (3) were associated with substantially increased risk of adulthood obesity. Even less is known regarding the extent and impact of childhood maltreatment among extremely obese persons. This represents an important research question, given clinical lore of high rates of abuse (4) coupled with the increasing prevalence of extreme obesity, accompanied by increased rates of bariatric surgery (5).

Similarly, whereas patients with various forms of eating disorders frequently report histories of childhood trauma, the significance of such experiences is uncertain (6,7). The literature pertaining to binge eating disorder (BED)¹ is

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¹ Nonstandard abbreviations: BED, binge eating disorder; CTQ, Childhood Trauma Questionnaire; QEWP-R, Questionnaire on Eating and Weight Patterns-Revised; EDEQ, Eating Disorder Examination-Questionnaire; BSQ, Body Shape Questionnaire; BDI, Beck Depression Inventory; RSE, Rosenberg Self-Esteem Scale.

especially relevant for obesity, because BED is associated with increased risk for obesity (8,9) and is common in morbidly obese patients (10–12). Yanovski et al. (13) reported that 28% of 43 obese BED subjects and 19% of 85 obese non-BED subjects reported having experienced sexual abuse. The frequency of sexual abuse did not differ by sex, between moderately and extremely obese subjects with BED, or between moderately and extremely obese subjects without BED (13). Fairburn et al. (6), in a community-based study, found that BED patients reported rates of sexual abuse and physical abuse (29% and 21%, respectively) comparable with a bulimia nervosa group (35% and 32%, respectively) and a psychiatric control group (26% and 29%, respectively), but higher than a normal (nonpsychiatric and nonobese) control group (11% and 10%, respectively). Grilo and Masheb (14) found that 83% of 145 consecutive treatment-seeking patients with BED reported some form of childhood maltreatment and that the different forms of maltreatment did not differ by sex or obesity status. The various forms of maltreatment were generally unrelated to the history or current features of either obesity or eating disorders, but emotional abuse was associated with greater body dissatisfaction and depression, and lower self-esteem.

This study aimed to examine rates of childhood maltreatment reported by extremely obese candidates for gastric bypass surgery. Collectively, the research reviewed above suggests that childhood maltreatment might be associated with increased risk for obesity and binge eating, but that greater amount or severity of maltreatment may not be associated with greater severity of obesity, binge eating, or features of eating disorders. In this study, we considered different forms of maltreatment (emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect), given recent research findings across diverse areas highlighting the importance of considering varied maltreatment experiences (15–17). We also examined the associations of different forms of maltreatment with sex, binge eating status, eating disorder features, and psychological functioning.

Research Methods and Procedures

Participants were a consecutively evaluated series of 340 (58 men and 282 women) extremely obese candidates for gastric bypass surgery at a general medical center. Mean age was 43.1 ± 10.5 (SD) years. Of the 340 participants, 68.8% ($N = 234$) were white, 16.5% ($N = 56$) were African American, 11.8% ($N = 40$) were Hispanic American, and 2.4% ($N = 8$) were of other ethnicity. Educationally, 61.5% ($N = 209$) had attended at least some college. Mean BMI was 51.1 ± 9.6 kg/m² (range, 35 to 85 kg/m²). Written informed consent was obtained.

Assessment of Childhood Maltreatment

The Childhood Trauma Questionnaire (CTQ; short-version) (18), a self-report instrument, assesses childhood maltreatment in five areas: emotional abuse, physical abuse, sexual abuse, emotional neglect, and physical neglect. Subjects rate statements about childhood experiences (before age 18) on five-point Likert-type scales (“never true” to “very often true”). While some of the items specify abuse/neglect by family members, other items do not specify family, adults, or peers as the perpetrators. Most items are phrased in objective terms (e.g., “When I was growing up, someone touched me in a sexual way or made me touch them”), whereas some items require subjective evaluation (e.g., “When I was growing up, I believe I was sexually abused”). Items about emotional abuse are general (e.g., “People in my family said hurtful or insulting things to me”) and do not assess whether the commentary targets weight, shape, or physical appearance. Reliability and validity of the CTQ, including its stability over time, convergent and discriminant validity with structured trauma interviews, and corroboration using independent data have been documented (18–20). For categorical analyses, we used established (18–20) cut-points for each CTQ scale (with sensitivity and specificity > 0.85 for each scale). In addition, we created the following summary categories to capture combinations or multiple forms of maltreatment (16): physical plus sexual abuse; physical plus sexual plus emotional abuse; emotional plus physical neglect; and no maltreatment.

Assessment of Eating Disorder Features

The Questionnaire on Eating and Weight Patterns-Revised (QEWP-R) (9) assesses each BED criterion and historical variables, including age at first overweight (overweight by at least 10 lb as a child or 15 lb as an adult). The QEWP-R, used in the DSM field trials, has received empirical support (21).

The Eating Disorder Examination-Questionnaire version (EDEQ) (22) assesses the frequency of different forms of overeating (including “objective bulimic episodes”—large quantities of food plus subjective loss of control). The EDEQ also contains a dietary restraint scale and three attitudinal scales (eating concerns, weight concerns, and shape concerns). Items are rated on seven-point scales (0 to 6); higher scores reflect greater severity or frequency. The EDEQ has received empirical support for assessing the psychopathology of eating disorders in community and eating disorder samples (22), in BED patients (23,24), and in extremely obese patients seeking bariatric surgery (25).

The EDEQ served as our primary measure of binge eating frequency. The EDEQ, unlike the QEWP-R, which yields categories of binge eating frequency, assesses frequency of binge eating dimensionally. This frequency was used in our

Table 1. Frequency of different forms of reported childhood maltreatment and their associations in 340 gastric bypass candidates

CTQ maltreatment categories	HMO female normative sample* (%)	Gastric bypass candidates						
		Frequency		ϕ coefficients†				
		N	Percentage	EA	PA	SA	EN	PN
EA	24.1	157	46.2					
PA	14.2	98	28.8	0.47‡				
SA	18.4	108	31.8	0.37‡	0.38‡			
EN	21.1	166	48.8	0.55‡	0.39‡	0.35‡		
PN	12.2	109	32.1	0.34‡	0.30‡	0.21‡	0.40‡	
Summary of categories								
PA and SA		58	17.1					
PA, SA, and EA		48	14.1					
EN and PN		85	25.0					
Any form of abuse/neglect	42.8	235	69.1					

* Frequency of different forms of childhood maltreatment reported by Walker (19) using data obtained from $N = 1125$ adult women (mean age = 42 years; 79% white) randomly selected from an HMO.

† ϕ coefficient is an effect size measure for contingency table analyses.

‡ $p < 0.001$.

EA, emotional abuse; PA, physical abuse; SA, sexual abuse; EN, emotional neglect; PN, physical neglect.

dimensional analyses. In addition, following the approach used in previous studies of bariatric surgery candidates (11,12), a frequency of binge eating once per week or greater was used to classify binge eaters. Such “subdiagnostic” BED cases have been found to differ little from DSM-defined cases using stricter criteria requiring twice weekly binge eating (26).

The Body Shape Questionnaire (BSQ) (27), a 34-item measure of body dissatisfaction, assesses the frequency of preoccupation with and distress about body size/shape. Subjects rate items on a scale from 1 (never) to 6 (always); higher scores reflect greater body dissatisfaction. The BSQ has shown reliability and validity (28) and is a widely used instrument for assessing body image dissatisfaction in clinical samples of obese patients (29) and patients with BED (30).

Assessment of Associated Psychological Functioning

The Beck Depression Inventory (BDI) (31), 21-item version, assesses current depression level and is comprised of the cognitive, affective, and somatic symptoms of depression. Higher scores reflect higher levels of depression.

The Rosenberg Self-Esteem Scale (RSE) (32) is a 10-item well-established measure of global self-esteem. Subjects rate the items on a scale from 1 (strongly agree) to 4 (strongly disagree); higher scores reflect higher self-esteem.

Results

Frequency of Childhood Maltreatment

Table 1 summarizes the frequency of rates of the forms of maltreatment in our patient group and—for context—those reported for a normative sample of adult women (19). Sixty-nine percent of patients reported some form of childhood maltreatment at or above established cut-points: 46% reported emotional abuse, 29% reported physical abuse, 32% reported sexual abuse, 49% reported emotional neglect, and 32% reported physical neglect. Table 1 also shows the summaries for combined or multiple forms of maltreatment. The maltreatment rates reported by these patients were roughly two to three times higher than for the normative sample (19).

Table 1 shows the strength of association (measured by the ϕ coefficient—an effect size measure for contingency tables) between each maltreatment category. Significant ϕ coefficients were observed between each of the maltreatment categories, although the magnitude of associations varied. In general, physical neglect showed lower ϕ coefficients with the other forms of maltreatment.

Childhood Maltreatment by Sex

Table 2 summarizes the frequency of the different forms of childhood maltreatment separately by sex. χ^2 (Yates corrected) analyses revealed no significant differences in

Table 2. Frequency of different forms of reported childhood maltreatment by sex

CTQ maltreatment categories	Men (N = 58)		Women (N = 282)		χ^2 (df = 1)*	p
	N	Percentage	N	Percentage		
EA	17	29.3	140	49.6	7.207	0.007
PA	13	22.4	85	30.1	1.049	0.307
SA	14	24.1	94	33.3	1.476	0.244
EN	24	41.4	142	50.4	1.213	0.271
PN	18	31.0	91	32.3	0.001	0.977
Summary of categories						
PA and SA	7	12.1	51	18.1	0.842	0.359
PA, SA, and EA	6	10.3	42	14.9	0.489	0.485
PN and EN	13	15.3	72	25.5	0.111	0.739
Any form of maltreatment	35	60.3	200	70.9	2.050	0.152

* χ^2 analysis with Yates continuity correction.

EA, emotional abuse; PA, physical abuse; SA, sexual abuse; EN, emotional neglect; PN, physical neglect.

the frequency of four of the five specific forms of maltreatment as categorized using established cut-points by sex. The one notable significant sex difference was the higher rate of emotional abuse reported by women. Similarly, no sex differences were observed for the summary categories of different forms of abuse. ANOVAs revealed the same pattern of findings by sex in the dimensional scores (which reflect severity) of the CTQ scales (data not shown).

Childhood Maltreatment by Binge Eating Status

Table 3 summarizes the frequency of the different forms of childhood maltreatment separately by binge eating status (defined here as at least once per week as in previous studies) (11,12) and—for context—those reported for a sample of obese adults with BED who presented to a university-based program (14). Of the 340 patients, 76 (22.4%) reported binge eating at least once weekly, and 203 (59.7%)

Table 3. Frequency of different forms of childhood maltreatment reported by gastric bypass candidates without binge eating (N = 203) and with (N = 76) binge eating

CTQ maltreatment categories	BED clinical sample*		No binge eating (N = 203)		Binge eating (N = 76)		
	Percentage	N	Percentage	N	Percentage	χ^2 (df = 1)	p
EA	59.3	87	42.9	38	50.0	0.870	0.351
PA	35.8	58	28.6	22	28.9	0.000	0.999
SA	30.3	67	33.0	22	28.9	0.253	0.615
EN	69.0	92	45.3	47	61.8	5.395	0.020
PN	48.6	58	28.6	33	43.4	4.893	0.027
Summary categories							
SA and PA	15.2	36	17.5	12	15.8	0.042	0.838
SA, PA, and EA	13.8	30	15.0	10	13.2	0.023	0.879
EN and PN	43.4	49	17.5	23	30.3	0.787	0.375
Any form of abuse/neglect	82.8	130	77.5	60	78.9	4.992	0.025

* Frequency of childhood maltreatment reported by 145 adult patients with BED seeking treatment at a medical school program reported by Grilo and Masheb (14).

EA, emotional abuse; PA, physical abuse; SA, sexual abuse; EN, emotional neglect; PN, physical neglect.

Table 4. Eating disorder psychopathology and psychological functioning in gastric bypass candidates without binge eating ($N = 203$) and with binge eating ($N = 76$)

	No binge eating ($N = 203$)		Binge eating ($N = 76$)		F ($df = 1$)	p
	Mean	SD	Mean	SD		
EDEQ restraint	2.7	1.3	2.7	1.4	0.003	0.960
EDEQ weight concern	3.2	1.0	4.0	1.1	30.49	0.001
EDEQ shape concern	4.0	1.4	4.8	1.0	23.42	0.001
EDEQ eating concern	1.5	1.2	3.1	1.3	91.94	0.001
Body Satisfaction Scale	110.6	35.0	138.4	32.4	36.56	0.001
BDI	12.2	8.2	17.5	9.8	20.63	0.001
RSE	30.4	5.5	27.8	5.9	11.36	0.001

reported no binge eating at all. Except for the lower rates for neglect, the maltreatment rates reported by these morbidly obese gastric bypass candidates were generally similar to those reported by Grilo and Masheb (14) for obese patients with BED.

χ^2 (Yates corrected) analyses revealed no significant differences in the frequency (categorized using established cut-points) of the three forms of abuse (emotional, physical, or sexual abuse) but significantly higher rates of the two forms of neglect (emotional and physical neglect) in the gastric bypass candidates who were classified as binge eaters. ANOVAs revealed the same pattern of findings by binge status in the dimensional scores (which reflect severity) of the CTQ scales (data not shown). Application of Bonferroni-adjustment for multiple comparisons rendered the two significant differences (at $p = 0.02$ and 0.027 , respectively) nonsignificant.

We note the possibility that the observed overall similarity between the binge eaters and non-binge eaters might simply reflect the use of “subthreshold” BED [i.e., the “Oxford” criterion of at least one binge per week (33) rather than the more stringent DSM requirement of 2 binge days per week]. The DSM frequency requirement is an arbitrary cut-point, and studies with BED (26) and bulimia (34,35) have documented few differences between patient groups categorized based on once- vs. twice-weekly binge frequency. Finally, this “subthreshold” or “Oxford” criterion (33) has been previously used in studies of bariatric surgery (11).

Nonetheless, we explored this critical issue in two ways. First, as a check of the “validity” or meaningfulness of this categorization, we compared the bariatric candidates classified as binge eaters vs. not binge eaters on their scores on a variety of eating disorder features and psychological domains. These findings are summarized in Table 4. As shown in Table 4, patients characterized as binge eaters (“subthreshold” BED; $N = 74$ of 340; 22.4%) had significantly higher levels of eating disorder features (three of the four

EDEQ scales) and body dissatisfaction (BSQ), higher depression (BDI), and lower self-esteem (RSE) than the non-bingers ($N = 203$ of 340; 59.7%). These findings suggest that our reliance on the “subdiagnostic” criterion for categorizing binge eaters did not result in clinically significant group demarcations. Thus, the findings of no significant differences by binge status for reports of most forms of childhood maltreatment are unlikely an artifact of this categorization.

Second, we performed a parallel series of analyses to those in Table 3 using the categorization of binge eating status at the DSM level of twice-weekly binge eating. The use of the more stringent twice-weekly requirement resulted in a subgroup of $N = 37$ (10.9%) patients classified as potentially having BED. Consistent with the findings in Table 3, χ^2 analyses revealed that the rates observed for this binge eating categorization for emotional abuse ($N = 18$; 48.7%), physical abuse ($N = 12$, 32.4%), and sexual abuse ($N = 13$; 35.1%) were not significantly different, and the rate of emotional neglect ($N = 23$; $N = 62.2\%$) was significantly higher [χ^2 ($df = 1$) = 10.02, $p = 0.002$]; the rate of physical neglect for this categorization ($N = 21$; 56.8%) no longer differed significantly.

Eating Disorder Features and Psychological Functioning

Table 5 shows the association between dimensional scores (reflecting severity) on the five CTQ scales (and total CTQ score) and current eating disorder features and psychological functioning (BDI and RSE). Bonferroni correction for multiple comparisons yielded an adjusted significance level of $p < 0.001$ (two-tailed tests). At this conservative adjusted level, reports of emotional abuse were significantly associated with higher eating concerns and body dissatisfaction, and emotional neglect was associated with higher eating concerns. In terms of psychological functioning, higher levels of various forms of maltreatment were associated with higher depression. At the adjusted level,

Table 5. Association between different forms of childhood maltreatment and current eating disorder features and psychological functioning ($N = 340$)

CTQ categories	Eating disorder features							Associated functioning	
	BMI	Binge episode	Restraint	Weight concern	Shape concern	Eating concern	BSQ	BDI	RSE
EA	0.02	0.04	0.11	0.15*	0.08	0.18‡	0.19**	0.21	-0.19
PA	-0.02	0.05	0.13	0.04	-0.01	0.08	0.09	0.18	-0.14
SA	-0.05	-0.02	0.02	0.00	0.03	0.02	0.08	0.15	-0.10
EN	-0.04	0.12	0.10	0.14	0.11	0.22†	0.12	0.22*	-0.20*
PN	-0.04	0.15	0.08	0.10	0.03	0.14	0.09	0.15	-0.11
CTQ total	-0.03	0.08	0.11	0.11	0.07	0.16†	0.15	0.24*	-0.20*

* $p < 0.05$; † $p < 0.01$; ‡ $p < 0.001$, all for two-tailed tests.

Bonferroni-adjusted p level for multiple comparison is $p < 0.001$.

EA, emotional abuse; PA, physical abuse; SA, sexual abuse; EN, emotional neglect; PN, physical neglect.

emotional abuse and emotional neglect were significantly associated with higher depression and lower self-esteem, and physical abuse was associated with higher depression.

Discussion

This study provides first estimates of different forms of self-reported childhood maltreatment in extremely obese candidates for bariatric surgery. Reports of childhood maltreatment were quite common in this treatment-seeking sample, with 69% reporting at least one form of maltreatment. The rates of maltreatment reported by these extremely obese patients were roughly two to three times higher than those reported by a normative sample of adult women (19) but differed little from those reported by Grilo and Masheb (14) for an obese group of patients with BED presenting for behavioral treatments at a university-based program. The reported frequency of sexual abuse (32%) in these patients was also similar to those in two previous reports of community-based studies of binge eaters recruited in diverse settings (6,13). The reported frequencies of sexual, physical, and emotional abuse were also comparable with the rates reported for a sample of obese persons (2). Except for the higher rates of emotional abuse reported by women, the distribution of the forms of maltreatment differed little by sex. We also observed few differences in binge eating status in the distribution of any form of maltreatment. These findings are generally consistent with findings of two previous studies (13,14) of no differences in reports of sexual abuse by sex among obese patients with and without BED.

In terms of obesity, whereas reported maltreatment in this study group was not associated with BMI, this might be caused by the “restricted ceiling”—i.e., our participants

were quite obese. It may be that the “degree” of obesity may not be associated with maltreatment. We note that the reported frequencies of maltreatment for the extremely obese patients here (with or without binge eating) are comparable with the rates reported by Grilo and Masheb (14) for obese patients with BED, and Yanovski et al. (13) found no differences in reported sexual abuse between moderately and extremely obese patients (with BED and without BED).

The different forms of childhood maltreatment were generally not significantly associated with variability in current binge eating or with other features of eating disorders. Emotional abuse and emotional neglect were the only forms of maltreatment with any statistically significant associations with the measures of eating psychopathology. Given the multiple analyses performed, a more stringent cut-off for significance, based on the Bonferroni correction, may be indicated, thus leaving only the following “significant” findings: reports of emotional abuse were associated with higher eating concerns and body dissatisfaction, and emotional neglect was associated with higher eating concerns. We do cautiously note the potential negative sequelae of emotional abuse and emotional neglect. Research across diverse problem areas has documented the negative impact of emotional abuse (15,17,36). Note also that the CTQ assesses general emotional abuse but does not specifically determine whether such negative commentary targets physical appearance. Previous research with obese treatment-seeking women with BED found that a history of being teased while growing up about general physical appearance (but not about weight/shape) was associated with greater weight concerns and body dissatisfaction but not with variability in various other forms of eating disorder psychopa-

thology (30). Also, while our findings regarding emotional neglect must be viewed cautiously, we note that Lissau and Sorensen (3) previously documented the association between parental neglect during childhood and a 10-fold increased risk for obesity in adulthood.

In terms of current psychological functioning, at the more stringent cut-off for significance, emotional abuse and emotional neglect were associated with significantly higher depression and lower self-esteem, and physical abuse was associated with higher depression. Of course, it is important to keep in mind that all of our patients were extremely obese, thus restricting our study group to clinically significant obesity among treatment-seekers. It may be that childhood maltreatment is associated with distress in general (and, hence, treatment-seeking or clinical status) but not specifically with variability in BMI or eating disorder symptomatology beyond that (6,7,37).

Our findings pertain to extremely obese bariatric surgery candidates evaluated at an urban general medical center. The findings may not be generalizable to obese patients who seek different (nonsurgical) forms of treatment or to non-treatment-seeking community populations (38). Whereas our measures of binge eating and features of eating disorders have received some empirical support for use with bariatric patient groups (25), it is possible that different measures could produce somewhat different findings (23,24,39). The optimal way to assess binge eating in this patient group remains uncertain (10). While investigator-based interviews are generally thought to be most advantageous, researchers have noted that underreporting of psychopathology may occur during interviews because of perceived concerns about its potential impact on eligibility for surgery (10,40). Nonetheless, some caution seems indicated when considering our findings. The degree of differences between the bingers and non-bingers in eating disorder psychopathology and psychological functioning (depression and self-esteem), however, provides some degree of confidence.

The validity of reports of abuse is also a complex issue (41,42). This study relied on a self-report instrument for assessing retrospectively different forms of childhood maltreatment. Although we acknowledge the inherent limitations with such self-report methods, it is also possible that they may remove some interpersonal concerns or barriers to disclosing sensitive material (43). The degree of convergence in rates of childhood maltreatment found here with those from our previous report for BED using the same CTQ assessment (14) and two other studies (6,13) with different (interview) assessments provides some degree of confidence that comes from replication.

Of course, the cross-sectional nature of the data also precludes any speculation about causality. Grilo et al. (44) emphasized that observed associations between childhood maltreatment and behavioral or psychological functioning

can arise because of multiple influences, including genetic, familial, and social factors that may be associated with either or both maltreatment and functioning.

While our findings here suggest that different forms of maltreatment are generally not associated with variability in current levels of BMI, binge eating, or eating-related features, it remains of potential clinical and research interest that the reported rates of maltreatment are 2- to 3-fold greater than those reported in normative samples (19). Perhaps, childhood maltreatment is associated with increased risk for obesity and binge eating, but that greater amount or severity of maltreatment does not account further for variability or severity of obesity, binge eating, or features of eating disorders. Future research needs to use appropriate control groups (e.g., non-treatment-seeking obese patients with and without BED and psychiatric groups without eating disorders) to provide additional context for interpreting the potential significance—if any—of maltreatment. There are hints, for example, that history of sexual abuse might represent a negative prognosis for treatment engagement or outcome in traditional weight loss programs (45). Prospective studies with repeated assessments after bariatric surgery are needed to determine the potential prognostic significance of childhood maltreatment and/or its associated psychological sequelae on outcome.

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