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Integrated health article

Temperament and one-year outcome of gastric bypass for severe obesity

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Abstract

Background: The role of temperament traits in shaping the outcome of gastric bypass for severe obesity has not been established yet. This study evaluated whether temperament traits influence weight loss 1 year after gastric bypass, controlling for the potential confounding effect of Axis I and II disorders.

Methods: Forty-nine patients with severe obesity (body mass index = 46.4 ± 6.7) undergoing gastric bypass completed a thorough psychiatric evaluation before surgery, including structured interviews, rating scales, and questionnaire assessing the presence and severity of co-morbid Axis I and II disorders. Temperament was evaluated with the Temperament and Character Inventory (TCI). Weight loss 1 year after surgery was calculated as percent total weight loss (%TWL). Predictors of weight loss were investigated with multivariate linear hierarchical regression.

Results: After accounting for psychiatric covariates, higher TCI persistence scores independently predicted 1-year outcome of gastric bypass and explained 40% of the variance in %TWL. Patients with low persistence scores showed a significantly lesser weight loss than patients with high scores.

Conclusion: Temperament traits denoting the ability to persevere in one's goals in spite of immediate frustration (persistence) are associated with greater weight loss 1 year after gastric bypass. These data suggest the utility of preoperatively assessing and reinforcing such capacity to optimize surgical outcome. Future research will clarify the behavioral mechanisms mediating this relationship as well as the influence of temperament on weight maintenance. (Surg Obes Relat Dis 2014;10:144–150.)

Keywords: Gastric bypass; Severe obesity; Temperament; Persistence; Effortful control; Preoperative predictors; Weight loss; Follow-up

In addition to surgical-technical factors, bariatric surgery success is attributed to patients' ability to implement permanent lifestyle changes, which largely depends on psychological factors [1]. Temperament features may play a role in this respect. Temperament refers to biologically based personality traits that reflect normal individual differences in emotional reactivity and self-regulation [2]. Research identified 4 temperament dimensions: negative affect/harm avoidance (tendency to inhibit behavior/experience anxiety in response to novel stimuli); extraversion/novelty seeking (tendency to approach/being excited by novel stimuli); effortful control/persistence (ability to overcome those fearful/impulsive tendencies in favor of valued goals); and reward dependence/affiliation (responsiveness to social rewards) [2,3]. Thus, these dimensions influence how individuals react to the environment (i.e., difficulty dealing with frustrating stimuli or resisting to immediate rewards) and thereby may confer resistance to long-lasting changes, such as those required after bariatric surgery. Clarifying whether any temperament traits are related to reduced postoperative weight loss may help to earlier identify

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candidates at risk for poor postsurgical success. However, the impact of temperament on bariatric surgery outcome is still understudied. The authors previously reported that higher persistence is associated with increased weight loss 1 year after gastric banding, suggesting that the ability to pursue one's goals (persistence) in spite of immediate reactive tendencies (i.e., negative affect, impulsivity) may play an adaptive role in the postsurgical adjustment [4]. That finding suggested the utility of assessing individual differences in normal temperament traits rather than deviant personality features in the evaluation of bariatric candidates, to capture the full range of strengths and attitudes of the individual that may be related to postsurgical success [4]. However, such an approach is challenged by recent findings that personality disorders (PD) can indeed prevent optimal outcome after bariatric surgery [5,6]. Because PD affect 20%–30% of bariatric candidates and are characterized by extreme temperament patterns (persistence, for example, may be low in some cluster B, "dramatic/impulsive," PD), the finding of an association between variations in temperament traits and surgical outcome could be due to PD co-morbidity, which was not controlled for in the above-mentioned gastric banding study [7,8]. Furthermore, temperament was not related to 6-month outcome of vertical banded gastroplasty, which limits the generalizability of our previous findings and calls for their replication beyond gastric banding samples [9]. In this regard, to our knowledge, no study investigated whether temperament is associated with the outcome of gastric bypass, one of the most effective treatments for severe obesity [10]. Therefore, this exploratory study evaluated whether preoperative temperament features were related to weight loss 1 year after gastric bypass independently from PD co-morbidity. We also took into account the potential confounding effect of Axis I disorders, because they are common among bariatric candidates and could interfere with both surgical outcome and personality assessment (for instance, concurrent anxiety/mood disorders may inflate self-report ratings on negative affect/harm avoidance) [6–8,11].

Methods

Sample

The initial sample included 64 candidates for gastric bypass (59 females; body mass index [BMI] = 46 ± 6.9) consecutively seeking treatment at an Italian University Hospital between January 2009 and January 2012. At intake, all patients underwent a thorough surgical, medical, and psychiatric assessment [12]. Five patients were excluded from surgery because of medical/surgical (n = 2) or psychiatric (n = 3: substance dependence, cognitive impairment, unstable psychotic disorder) reasons, and 10 patients declined surgery during (n = 8) or after (n = 2) the evaluation phase. Thus, the final sample comprised 49 patients (44 females) who underwent gastric bypass. The 2 groups did not differ in terms of gender distribution, years of education, and BMI. Age was lower in the operated group (37.8 ± 9.9 versus 44.4 ± 10.1, $t(62) = 2.26$, $P = .03$).

Baseline psychiatric assessment (1–2 months before surgery)

Temperament was evaluated using the novelty seeking (NS), harm avoidance (HA), reward dependence (RD), and persistence (P) scales of the Temperament and Character Inventory (TCI), a 240-item true/false self-report questionnaire [8]. Example items are "It is hard for me to stay interested in the same things for a long time because my attention often gets distracted by other things" (NS); "I often have to stop what I am doing because I start to get worried about what can go wrong" (HA); "I often give in to the wishes of friends" (RD); "I am often so determined that I continue working long after other people have given up" (P). All of these example items are illustrative of a positive score on the corresponding scale, but some other items must have their scores reversed. The TCI also includes 3 character scales that were not used in this study because they were unrelated to the study focus on temperament. The internal consistency of the TCI scales ranges from .76 to .89, and the scores are normally distributed in the general population [3,8]. In addition, the TCI has been used previously in both community and treatment-seeking obese samples, including Italian bariatric populations [4,9,13].

PD were assessed with the Structured Interview for DSM-IV Personality, which rates each of the criteria for all PD on a 4-point scale (0 = not present; 1 = subthreshold; 2 = present; and 3 = strongly present). It requires that the criteria be present and pervasive (scores ≥ 2) for most of the last 5 years to count toward a diagnosis [14]. Interrater reliability estimates for the individual criteria for each PD are good (all $\kappa > .70$) [15].

Current Axis I disorders were evaluated with the Structured Clinical Interview for DSM-IV-TR Axis I Disorders —Research Version (SCID-I)) [16]. The eating disorders module of this interview also includes a section assessing binge eating disorder according to proposed research criteria [17]. The SCID-I is the gold standard for assessing major mental disorders (mean $\kappa = .71$, range = .61–.83) [16–18].

The severity of depressive, anxiety, and bulimic psychopathology was dimensionally evaluated with the Hamilton Rating Scales for Depression and Anxiety (Ham-D, Ham-A) and the Bulimia scale of the Eating Disorders Inventory-2 (EDI-Bulimia) [19–21]. The Ham-D and Ham-A are the most widely used and accepted clinician-rated scales for quantifying anxiety and depression severity, and both show good interrater reliability (ICC = .57–.73 for the Ham-D; .74–.96 for the Ham-A) [22,23].