



# Psychological and psychiatric standardized procedures for metabolic bariatric surgery: a clinical practice model for mental health providers

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## Abstract

**Introduction** Obesity is a multifactorial and chronic disease, constantly growing in prevalence. Metabolic and Bariatric Surgery (MBS) is among the most effective therapies for obesity, determining consistent long-term weight loss and maintenance. Increasing evidence suggests a relevant mental health contribution to obesity pathogenesis. European and International Guidelines for MBS emphasize the importance of a pre-surgical psychological/psychiatric assessment and a post-surgical follow-up to improve MBS outcomes. Yet, no standard psychological/psychiatric procedures currently exist.

**Methods** This paper overviews the psychological/psychiatric procedures which Italian mental health providers currently perform on MBS candidates to provide psychological support through every step of the MBS, from the assessment to the postsurgical follow-up, to evaluate eligibility, prevent mental health flare-ups and weight regain, as endorsed by the Board of the Italian Society of Surgery for Obesity and Metabolic Diseases (SICOB).

**Results** The psychological/psychiatric procedures should encompass two phases: pre-surgical assessment and post-surgical follow-up. Pre-surgical assessment should investigate every condition that might reduce the MBS effectiveness or contraindicate the surgical process. It must include a mental state evaluation, weight history, eating behavior, body image, psychosocial conditions, and motivation. The post-surgical follow-up should offer psychological support to patients in achieving weight loss and maintenance. It should also prevent the onset or recurrence of psychiatric disorders that may affect clinical outcomes.

**Discussion** This paper is the first to introduce a standardized protocol for psychological/psychiatric procedures for each phase of the surgical process, to allow MBS candidates to receive similar care despite geographical differences. It also serves as a potential clinical model for assessing mental eligibility or contraindications prior to MBS, and subsequently support the individual behavioral and lifestyle changes to achieve and maintain weight loss.

## Key Points

- Obesity and psychiatric disorders intertwine, influencing surgical outcomes.

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- **Standardized mental health procedures are crucial in bariatric surgery candidacy.**
- **Pre- and post-operative psychological support is pivotal for optimal outcomes.**
- **Standardized procedures ensure consistency, reliability, and quality of care.**

**Keywords** Obesity · Metabolic bariatric surgery · Mental health · Clinical procedures

## Introduction

Obesity is a chronic multifactorial disease that has become a significant public health issue, reaching epidemic proportions [1]. It is estimated that one-third of the world population may now be classified overweight or having obesity [2].

Metabolic and Bariatric Surgery (MBS) is among the most effective therapies for obesity, showing consistent long-term weight loss and significant improvement in the overall clinical picture [3]. However, as the popularity of MBS has grown over the years, psychiatric disorder occurrence in MBS-seeking patients has become increasingly evident, and high prevalence has been observed mainly for depression and Binge Eating Disorder (BED) [4]. Notably, the lifetime rate of any psychiatric disorders can be high as 80.9% [5] and about 30% of bariatric patients report depressive symptoms at the time of surgery [6]. Mental health conditions can adversely affect surgical outcomes, such as a negative impact on weight loss and on postoperative psychological health if not adequately addressed [7, 8]. Patients suffering from these conditions often show lower adherence to post-surgical lifestyle changes [9], which is crucial for the long-term success of bariatric surgery, partly explaining the higher rate of poor post-surgical outcomes.

Among obesity-contributing factors, increasing evidence suggests that several psychopathological conditions may be associated with obesity pathogenesis. Rates of obesity are indeed higher than average in psychiatric populations, especially in severe mental illness and anxiety disorders [10]. Furthermore, mental health comorbidities are highly prevalent in patients with severe obesity [11]. The link may lie in psychiatric disorders' potential to affect one's eating behavior, primarily when patients use food to cope with mental distress, thus increasing the risk of developing obesity [12]. Furthermore, obesity is frequently the expression of an eating disorder (ED), especially BED and Night Eating Syndrome (NES). Their prevalence is higher in individuals with obesity (15%) rather than the general population (2–5%) and rises to 60% in patients with obesity seeking surgical help [13–15]. However, the link between obesity and psychopathology is considered bidirectional [16]. It is well known that psychiatric disorders can also develop due to the obesity-related chronic low-grade neuroinflammatory state that may relevantly affect the neuroendocrine activity and neurotransmitter balance [17, 18].

The American Society for Metabolic and Bariatric Surgery (ASMBS) [19], the European and Italian guidelines [20, 21], and the recent Italian Delphi consensus [22] consider several psychiatric disorders as contraindications or reasons for surgery deferral (e.g., non-stabilized severe mental illness, current alcohol abuse (AUD) or substance use disorders (SUD)) and highlight the importance of mental health evaluation. The European Position Statement explicitly states that several mental health conditions can pose a contraindication unless otherwise “*specifically advised by a psychiatrist experienced in obesity*” [21]. Moreover, the most current ASMBS and International Federation for the Surgery of Obesity and Metabolic Diseases (IFSO) guidelines emphasize the importance of mental health assessment by a licensed mental health provider in the pre-surgical evaluation of the MBS candidate patient to address disordered eating, severe uncontrolled mental illness, and active substance abuse, to implement adequate interventions and optimize surgical outcomes [23].

Despite the widespread mention of the mental health assessment role in MBS, no current national or international statements exist regarding the standardization of clinical psychological/psychiatric procedures. This gap is significant, as standardized procedures have been shown to improve outcomes in various medical fields by ensuring consistency, reliability, and quality of care. This paper aims to provide an overview of the psychiatric/psychological procedures of the MBS multidisciplinary team. It concerns the Italian psychiatric/psychological clinical procedures to inquire about mental health conditions and psychological factors in MBS candidates and subsequent post-surgical follow-up, endorsed by the Board of the Italian Society of Surgery for Obesity and Metabolic Diseases (SICOB) and published online in 2017 [24]. It provides suggestions for standardized psychological/psychiatric procedures for the mental health management of bariatric candidates, translating the international recommendation into pragmatic guidance that can serve as a starting point in developing official guidelines. Standardized procedures offer significant advantages, ensuring that patients receive standardized reliable care, fostering continuity and reliability in treatment approaches regardless of the differences in healthcare facilities, similar to the well-established standardized nutritional programs in clinical practice [25]. Furthermore, it can serve as a guide for mental health providers to recognize and address any mental health conditions that can potentially harm a candidate which would otherwise

undergo surgery without the necessary psychological support and intervention.

## Pre-surgical assessment

The pre-surgical assessment of individuals seeking bariatric surgery is a critical component that stands out as an indispensable tool for elucidating patient's psychological profile, among its multiple aspects. It aims to identify any factors that may impact post-surgical outcomes, ultimately contributing to informed decision-making about surgery. The psychological/psychiatric evaluation of the MBS candidate must investigate any mental health condition that might hinder the MBS process. This is particularly crucial for identifying mental disorders associated with or contributing to obesity, which could contraindicate MBS or reduce its effectiveness.

The clinical interview must also encompass a comprehensive assessment of various psychological dimensions that can influence the MBS process, including a detailed evaluation of eating behaviors, weight and diet history, and body image uneasiness and dissatisfaction, psychosocial conditions and motivation. A holistic assessment enables the identification of several potential issues that may negatively affect the whole surgical process, such as mental health issues, lack of social support, or unrealistic expectation. An early recognition can allow the development of personalized strategies to overcome these barriers, thereby proposing support plans and interventions, to increase the likelihood of successful outcomes.

The first visit should be conducted face-to-face at the health center. A clinical psychologist or, when available, a psychiatrist, specifically trained for this purpose, should conduct the clinical evaluation. The clinical psychologist must consistently seek consultation with a psychiatrist whenever there is suspicion of a psychiatric disorder. This collaborative approach ensures a thorough and multidimensional evaluation, incorporating the expertise of both figures, enhancing the reliability and validity of the diagnostic process. The pre-surgical assessment can potentially involve the caregivers who may help assist the information-gathering process, particularly in verifying the patient's reliability, but also strengthens the therapeutic alliance by involving the patient's support system in the overall therapeutic plan. While involving the caregivers can provide valuable support depending on psychosocial conditions, patient's preferences must be emphasized, respecting and accommodating the potential choice to refrain their caregivers from attending their visits, ensuring that the overall care is patient-centered. The following paragraphs provide an in-depth description of specific steps for a comprehensive pre-surgical assessment, which are also summarized in Fig. 1.

## Clinical interview and mental state evaluation

A proper clinical evaluation must include an anamnestic record and a current mental state evaluation to exclude any psychiatric disorder. The anamnestic record should include the patient's psychiatric history, involving an in-depth exploration of past diagnoses, as well as a detailed account of previous specific interventions, such as pharmacological and/or psychotherapy. Family psychiatric history can also provide insights on potential genetic predisposition and familial patterns. Such a thorough assessment can provide a holistic view of the patient's mental health trajectory. It can allow clinicians to identify patterns in the patient's psychological well-being, including periods of stability and episodes of crisis that can worsen after MBS. Understanding the effectiveness and side effects of past treatments can inform current therapeutic decisions and help anticipate the patient's response to future interventions. Furthermore, this detailed history aids in recognizing any underlying or co-occurring mental health conditions that may impact the patient's eligibility for MBS and their ability to adhere to postoperative care plans. Beyond diagnoses and interventions, the history should encompass traumatic and stressful experiences, since they can impact their mental well-being and coping mechanisms. Also, trauma history can significantly correlate with depressive symptomatology and pathological eating behaviors [26], likewise occurring after MBS [27]. The physician should perform a thorough current mental state evaluation, to identify signs of distress, mental disorders and overall functioning. Since mental health conditions can pose a contraindication or negatively affect MBS outcomes, the investigation should be comprehensive. Structured Clinical Interview for DSM-5, Clinician Version (SCID-5-CV) [28], and Mini-International Neuropsychiatric Interview [29] can assist the mental health providers in diagnosing relevant psychiatric disorders, such as Mood Disorders (e.g., Major Depressive Disorder (MDD), Bipolar Disorder (BD)), Anxiety Disorders (e.g., Generalized Anxiety Disorder, Social Anxiety Disorder, Panic Disorder), Psychotic Disorders, Personality disorders, Substance/Alcohol Use Disorder (AUD), and Impulse-control Disorders. In instances where a mental health condition is suspected, the integration of psychometric tools can help measure the symptomatologic dimensions and provide data to supplement clinical observation. These tools offer a dynamic framework to measure the severity of psychiatric disorders and can help track changes before and after an intervention, thereby measuring the impact of different therapies on clinical outcomes. The rating scales include but are not limited to the ones presented within the following paragraphs, which provide an example of the most used in clinical practice. Further options and brief descriptions are available in Table 1. Concerning the assessment of mood and anxiety disorders, mental health providers may employ

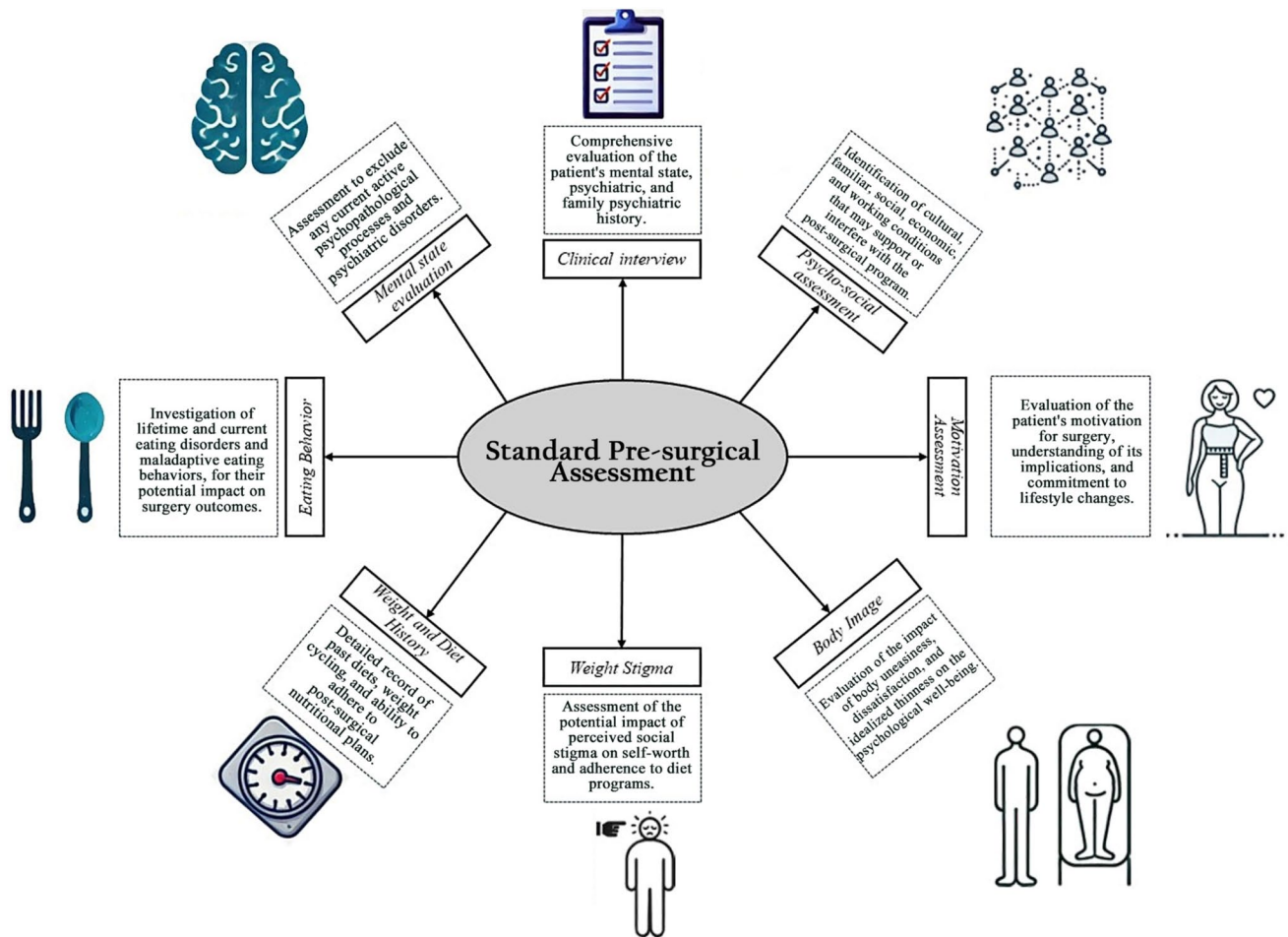


Fig. 1 Summarization of the standard pre-surgical assessment

the Beck Depression Inventory [30], Hamilton Depression Rating Scale [31], State-Trait Anxiety Inventory [32], and Hamilton Rating Scale for Anxiety [33]. The relevance of Mood Disorders is stressed by the increased risk of post-surgical pharmacological de-compensation [34] due to the influence of MBS on drug absorption and its potentially severe consequences, such as an increased suicide risk [35, 36]. AUD must be evaluated due to the increased likelihood of developing or relapsing alcohol abuse after MBS, especially after a gastric bypass [37]. Surgery affects alcohol pharmacokinetics, accelerating its absorption due to quicker gastric emptying and reduced expression of alcohol dehydrogenase [38, 39]. The CAGE questionnaire is helpful in screening former and current alcohol use [40]. Substance use disorder (SUD) must be assessed due to an increased risk of new-onset or relapse after MBS [41]. Drug Abuse Screening Test (DAST) may be helpful to screen for substance abuse history [42]. Personality traits can influence individual stress-coping ability for post-surgical recommendations and lifestyle changes. They also can impact eating

behavior, associating with body image disorders and disordered eating [43], and ultimately indirectly influence nutritional and weight management. A structured assessment of personality traits can help determine the most appropriate type of psychotherapy (e.g., borderline personality disorder may benefit from dialectical behavioral therapy). The Minnesota Multiphasic Personality Inventory 3 can be used to measure personality traits standardly [44].

### Eating behavior history

Mental health providers should always thoroughly investigate lifetime EDs. Notwithstanding mixed evidence, due to the heterogeneity of the appraised samples, BED seems to be associated with post-surgical insufficient weight loss [45, 46]. NES is associated with poor post-surgical outcomes due to its symptomatic core characterized by nocturnal eating and the shift in the circadian rhythm [47, 48]. Mental health providers should also inquire about obesity-associated maladaptive eating behaviors or disordered eating that can



**Table 1** Most used clinical assessment tools in clinical practice

Purpose	Tool	Description	Interpretation
Transdiagnostic tools	Mini-international neuropsychiatric interview (M.I.N.I.) [23]	Short structured diagnostic interview developed for DSM-IV and ICD-10 psychiatric disorders	Interpretation involves systematically assessing the presence or absence of specific symptoms and applying diagnostic criteria to determine the appropriate psychiatric diagnosis
	Structured Clinical Interview for DSM-5 Disorders—Clinician Version (SCID-5-CV) [87]	Standardized clinician-administered diagnostic tool designed for systematic assessment of psychiatric disorders based on DSM-5 criteria	Assesses diagnosis through questions provided alongside each corresponding DSM-5 diagnosis criteria and specifiers
	Brief Psychiatric Rating Scale (BPRS) [88]	A clinician-administered scale used to measure psychiatric signs and symptoms such as anxiety, depression, grandiosity and psychosis	It consists of 18 items with a seven-item Likert scale (1–7) from ‘not present’ to ‘extremely severe’
	Clinical Global Impressions (CGI)-Severity [89]	A simple scale that evaluates the illness severity through the question: ‘Considering your total clinical experience with this particular population, how mentally ill is the patient at this time?’	The answer is a 7-item Likert scale that ranges from 1 = normal to 7 = among the most extremely ill patients
	Clinical Global Impressions (CGI)-Improvement [89]	A simple scale that measures the improvement after the medication as been initiated, compared to the admission	The answer is a 7-item Likert scale that ranges from 1 = very much improved to 7 = very much worse, with 4 = no change from baseline
Anxiety	State-Trait Anxiety Inventory (STAI) [90]	A self-report scale with separate assessments for state (20 items) and trait (20 items) anxiety	20–37 no or low anxiety, 38–44 moderate anxiety, 45–80 high anxiety
	Hamilton Anxiety Rating Scale (HARS) [27]	Clinician-administered scale with 14 items assessing the severity of anxiety symptoms	<17 mild severity, 18–24 mild to moderate, 25–30 moderate to severe
	Beck Anxiety Inventory (BAI) [91]	21-item self-report inventory assessing the severity of anxiety symptoms	0–7 minimal, 8–15 mild, 16–25 moderate, 26–63 severe
Depression	Hamilton Rating Scale for Depression (HDRS) [25]	Clinician-administered scale with 17 or 21 items assessing the severity of depressive symptoms	Scoring is based on the 17-item scale: 0–7 normal, 8–16 mild, 17–23 moderate, > 24 severe
	The Beck Depression Inventory (BDI) [24]	A 21-item self-report inventory assessing the severity of depressive symptoms	0–9 normal, 10–18 mild to moderate, 19–29 moderate to severe, 30–63 severe
	Montgomery-Åsberg Depression Rating Scale (MADRS) [92]	Clinician-administered scale with 10 items assessing the severity of depression	0–6 normal, 7–19 mild, 20–34 moderate, ≥ 35 severe
Bipolar disorder	Young Mania Rating Scale (YMRS) [93]	Clinician-administered scale with 11 items assessing the severity of manic symptoms	≤12 remission, 13–19 minimal symptoms, 20–25 mild mania, 26–37 moderate mania, 38–60 severe mania
	Mood Disorder Questionnaire (MDQ) [94]	Self-report tool with 5 Yes–No questions (question n.1 consists of 13 items) and one Likert scale answer for question n.3 (no problem-serious problem) used to screen for Bipolar spectrum disorders	A screen is positive if the patients answers Yes to more than 7 items of question n.1, yes to question n.2 and moderate/serious to question n.3

**Table 1** (continued)

Purpose	Tool	Description	Interpretation
Psychosis	Positive and Negative Syndrome Scale (PANSS) [95]	30 items clinical interview-based scale that measures symptom severity in patients with schizophrenia with a 1–7 rating for each item	It assesses different dimensions like positive, negative symptoms and general psychopathology. Mildly ill corresponds to a score of 58, moderately ill to 75, markedly ill to 95
Personality traits	Psychotic Symptom Rating Scales (PSYRATS)	Semi-structured interview-based scale that investigates the severity of hallucinations (11 items) and delusions (6 items). Each item is rated from 0 = absent to 4 = severe	Higher scores correlate with more severe psychotic symptomatology that strongly correlates with the PANSS
Impulsiveness	Minnesota Multiphasic Personality Inventory 3 (MMPI-3) [96]	335-item assessment tool for measuring personality characteristics and psychopathology	Interpreting MMPI-3 comprehends profile configuration, validity scales, clinical scales, content scales and comparison to norms
Alcohol use disorder	Barratt Impulsiveness Scale (BIS) [97]	30-item self-report scale measuring impulsivity tendencies	Scores range from 30 to 120, with higher scores indicating higher levels of impulsivity
Substance use disorder	Cut down Annoyed, Guilty, Eye-opener (CAGE) Questionnaire [98]	Brief four-question screening tool assessing alcohol dependence risk	A positive response to two or more questions suggests an increased risk of alcohol dependence
Weight stigma	Alcohol Use Disorders Identification Test (AUDIT)	10 multiple choice questions about alcohol use frequency and related problems	A score $\geq 8$ points is a positive screen for AUD
Body image	Drug Abuse Screening Test (DAST-20) [99]	20-item yes/no self-report scale measuring the severity of substance use and related problems	1–5 low, 6–10 intermediate, 11–15 substantial, 16–20 severe
	The alcohol, smoking and substance involvement screening test (ASSIST) [100]	Clinician-administered 8-questions test that screens for prescription drugs, illegal drugs, tobacco, and alcohol. Answers range from 'never' to 'daily'	If any of the answers is more often than never, it may indicate a substance problem
	Stigmatizing Situations Inventory (SSI) [58]	50-item self-report measure assessing frequency of experiencing stigmatizing situations, including 11 subscales	Each subscale highlights various types of weight-related stigmatizing experiences, and higher scores indicate greater frequency
	Weight Bias Internalization scale (WBIS) [59]	11-item self-report measure assessing internalized weight bias	Higher scores indicate greater weight-related self-stigma
	Body Uneasiness Test (BUT) [61]	71-item self-report scale consisting of two parts (A with 5 subscales and B with 8 subscales) assessing concerns about body image and appearance	Scores can be calculated both overall and for each subscale
	Fat phobia scale revisited [62]	Self-report scale with 14 items measuring fear of gaining weight	Score is calculated as average. Higher scores indicate greater concern about gaining weight
	The Body Shape Questionnaire (BSQ) [64]	34-item self-report scale assessing concerns about body shape and weight	Higher scores indicate greater concern about body shape and weight
	Body Image Concern Inventory [101]	19-item self-report measure designed to assess dysmorphic appearance concern	Items are scored on a scale of 0 to 5, with higher scores indicating higher levels of body image distortion
Motivation	Decisional Balance Test for Weight [65]	20 items as a decisional "balance sheet" of comparative potential pros and cons regarding weight loss. A five-point Likert format was used ranging from 1 = not important to 5 = extremely important	It evaluates gains or losses for self, gains or losses for others, self-approval or disapproval, and approval or disapproval by others

**Table 1** (continued)

Purpose	Tool	Description	Interpretation
Weight and diet history	Weight and Lifestyle Inventory (WALI) [55]	Self-report questionnaire designed to obtain information about eating habits, diet and weight history and psychosocial stressors	It is a mean to gather clinical information and it also quantitatively measures emotional eating in section H through a Likert scale ranging from 1 = does not contribute at all to 5 = contributes the greatest amount
Eating behaviors			
Eating disorders	Eating Disorder Inventory, Third Version (EDI-3) [102]	91-item self-report questionnaire measuring eating disorder symptoms, including low self-esteem, personal alienation, interpersonal insecurity, interpersonal alienation, interoceptive deficits, emotional dysregulation, perfectionism, asceticism, and maturity fear	Item scoring ranges from 0 to 4, more elevated scores indicate higher eating disorder-related psychopathology
	Eating Disorder Examination Questionnaire (EDE-Q 6.0) [103]	28-item self-report questionnaire assessing eating disorder symptoms with four subscales: restraint, eating concern, shape concern, and weight concern, as well as behavioral symptoms related to these concerns	Subscale scores are reported as means and standard deviations, providing frequency and intensity data for each subscale, plus a global score
Binge eating	Binge Eating Scale (BES) [104]	16-item self-report scale assessing the severity of binge eating symptoms	0–17 minimal, 18–26 moderate, ≥27 severe
Food addiction	Yale Food Addiction Scale 2.0 (YFAS 2.0) [105]	35-item self-report scale measuring addiction-like eating behaviors	Two scoring options: (1) “symptom count” ranging from 0 to 7 reflecting the number of addiction-like criteria endorsed; (2) dichotomous “diagnosis” denoting whether a threshold of three or more “symptoms” plus clinically significant impairment or distress has been met
Food craving	Food Craving Questionnaires [106]	Two self-report instruments for the measurement of the multidimensional nature of food craving as a trait (FCQ-T, 9 subscales) and state (FCQ-S, 5 subscales)	Scores can be calculated for each subscale or in total, ranging between 39 and 234 for FCQ-T, and 15–75 for FCQ-S, with higher scores indicating more frequent and intense food craving, in general or current respectively

negatively affect MBS weight outcomes. Disordered eating refers to behaviors not fully meeting any ED criteria yet associated with relevant clinical distress or significant psychological impairment, especially concerning anxiety and depression [49]. Disordered eating includes grazing, sweet-eating, loss of control eating (LOC), and craving included in food addiction. *Grazing* is a repetitive, unexpected eating of small amounts of food, not in response to hunger. Its psychopathological traits include high levels of anxiety, impulsiveness, and body image disorder [50]. *Sweet-eating* is the repetitive eating of sweet foods, with 50% of the daily carbohydrate consumption, which can be triggered by emotional factors [51]. Both conditions can lead to poor clinical outcomes after MBS, with an increased risk of post-surgery EDs and subsequent insufficient weight loss or weight regain [52]. Also, repetitive ingesting of high-sugar foods may increase the risk of dumping syndrome [53]. LOC is defined as the subjective perception of being unable to resist or stop eating, regardless of the amount of food consumed, and can result in binge episodes, the consumption of abnormally large quantities of food in a short period of time. LOC is associated with the dysregulation of the emotional system related to impulsiveness [54]. It increases the risk of insufficient weight loss [45] and can worsen MBS outcomes. The Eating Disorder Inventory, Third Version (EDI-3) can be employed to screen EDs and assess their symptoms and psychological features [55]. Disordered eating behaviors correlate with high impulsivity levels [56, 57], which can be measured through the Barratt Impulsiveness Scale [58] and the Binge Eating Scale [59]. High impulsivity levels may adversely affect post-surgical weight loss [60] and may benefit from psychological therapy before undergoing MBS.

### Weight and diet history, weight stigma

An in-depth record of all attempted and failed diets, including any instances of weight cycling, must be meticulously documented to evaluate the patient's ability to cope with the post-surgical nutritional program. A detailed dietary history is essential for understanding the patient's past challenges and successes with weight management, thereby providing insights into their potential compliance with post-surgical recommendations and suggest possible psychological and nutritional supportive care plans. The mental health provider must also gather an anamnestic record of previous EDs, considering that they can increase susceptibility to the occurrence of new-onset post-surgery psychiatric conditions, like anorexia nervosa (AN) and bulimia nervosa (BN) and disordered eating [49]. The Weight and Lifestyle Inventory [61] can assist the history gathering process, offering a structured approach to thorough collect information about the patient's weight and diet history, eating behaviors, and lifestyle factors, also identifying triggers related to weight

gain and loss, providing a comprehensive overview of the patient's relationship with food and their body.

Perceived social stigma must be carefully considered as it can significantly interfere with post-surgical follow-up. Internalized weight stigma has been shown to directly impact self-worth and self-perception [62] and subsequently impair the ability to adhere to a diet program and achieve weight loss, further complicating the post-surgical process, determining insufficient weight loss or weight regain. This internalization of stigma can lead to poorer adherence to required strict dietary regimens [63] and ultimately affect long-term outcomes. Utilizing tools like the Stigmatizing Situations Inventory [64] and the Weight Bias Internalization Scale [65] can help measure the intensity of weight stigma perception.

### Body image

Practitioners must consider the patient's body uneasiness and dissatisfaction, as these feelings can affect their psychological well-being and the overall success of bariatric surgery. Body image is significantly influenced by psychosocial factors, especially the modern idealization of thinness, which is often paralleled with attractiveness, social status, and success [66]. These ideals can fuel feelings of body uneasiness and dissatisfaction, particularly upon the occurrence of weight stigma, that is often experienced by individuals suffering from severe obesity [67]. Drive for thinness can contribute to the high emotional investment in surgery, and post-surgical weight phobia, that can trigger eating disorders such as anorexia or bulimia as defense mechanisms against the anxiety related to potential weight regain [49].

The 'inside view' of Body image encompasses perceptual, cognitive, and emotional components, which may be resistant to change, especially in individuals who have experienced obesity since childhood, who often harbor an ingrained body image [68]. After MBS, the perceptual and emotional components of one's self-image may lag behind the physical reality, creating a dissonance where the individual may not fully recognize and accept their new thin bodies despite the evident physical change, thereby impeding the full realization of their surgical process [69]. This dissonance can impede the full realization of their weight loss journey, resulting in insufficient weight loss or weight regain due to reduced motivation, driven by unresolved negative emotions and a persistent sense of dissatisfaction. The struggle to accept and internalize their new body can also lead to a resurgence of depressive symptoms and dissatisfaction, fueled by the anxiety of not meeting internalized or societal expectations [70].

Investigating body image and obesity onset is thereby crucial during the assessment to support the candidates



understand and accept the ongoing body transformation, that is essential for long-term successful outcomes [71]. Body image disorders can be evaluated using various standardized tools, such as the Body Uneasiness Test [72], Fat Phobia Scale [73], Body Image Concerns Inventory [74], and Body Shape Questionnaire [75]. Eventual body image concerns may benefit from psychological treatment to improve MBS's long-run outcomes.

Addressing body image issues early through counseling and psychological interventions can help reduce post-surgical dissatisfaction that can fuel the development of eating disorders, depression, and anxiety, thereby promoting better adherence to postoperative guidelines and enhancing the overall success of bariatric surgery.

### Motivation assessment

The motivation to undergo surgery is one of the most critical aspects to inquire about during the pre-surgical assessment, since individuals with strong commitment are more likely to comply with the rigorous post-surgical requirements and maintain long-term lifestyle changes. The assessment of motivation involves evaluating the patient's commitment to the surgical process, weight loss and their understanding of the surgery's implications. Motivation refers to the energy, direction, persistence and finality toward a goal (REF). Several theoretical models can help in the evaluation of the nature of motivation, accounting for what are the driving factors of the patient's choice. According to Self-determination Theory [76], an individual can experience an intrinsic motivation or extrinsic motivation. Intrinsic motivation arises from within the individual, driven by interest or enjoyment in the task or goal itself, such as personal health goals and self-improvement. On the other hand, extrinsic motivation involves performing tasks to achieve external rewards or avoid punishments, therefore, the motivation is not self-determined but controlled by external pressure. Within this framework, internal motivation is traditionally linked to higher levels of engagement and persistence since the individual behaves for its own well-being and satisfaction. However, low self-determination in motivation can be strengthened by aligning external pressure with personal values and self-concept, into the process of internalization. Through the stages of internalization, behavior is progressively introjected toward a complete assimilation into the individual's values and needs, which can be assimilated to intrinsic motivation in terms of engagement and persistence. Another theory regards the Locus of Control (LC) [77] that refers to the personal beliefs regarding the regarding the causes of their life events and experiences. Individuals with an internal locus of control believe that one's behavior has a significant influence over life events, attributing success or failure to their own efforts and decisions. Individuals with

an external locus of control believe that external factors, such as luck, fate, or other people's actions, primarily influence the outcomes of their lives, which are considered as beyond their control. Evidence showed that patients with internal LC are more prone to maintain postsurgical weight loss [78], explainable by the higher motivation to take initiative and persist in tasks, with enhanced resilience. On the contrary, patients with external LC may have lower motivation to take initiative, as they believe their efforts are less impactful, besides an increased susceptibility to feelings of helplessness and stress, due to a perceived lack of control.

In order to improve the motivation in case of external LC, a personalized psychological intervention could be employed, to help the individual develop a sense of personal agency and responsibility for their life events.

Useful motivation-assessing psychometric tools are the Decisional Balance Test for weight [79]. In addition, mental providers should always evaluate potential ambivalence about surgery, exploring and reinforcing insight about surgery fears or belittlement of the associated risk. Patients' false beliefs (e.g., surgery automatically resolves all the problems → the patient will not adequately follow the post-intervention nutritional program) must be investigated and undone before surgery.

### Psychosocial assessment

Psychosocial assessment serves to identify cultural, working conditions and economics that can support or interfere with the post-surgical program. Doubtful and not fully motivated patients must undergo at least five motivational sessions before the intervention. Patients should also be helped to withstand the negative judgment of the environment.

Additionally, the evaluation should assess the candidate's psychosocial condition, including support systems, stress levels, and coping mechanisms. Social network support can provide assistance in adhering to the required lifestyle changes and overcome challenges during the post-surgical period. Also, evaluating the candidate's stress levels and coping mechanisms helps identify how they manage adversity. Identifying potential issues allows for the implementation of stress management and coping strategies to maximize the success of MBS.

### Pre-surgical assessment indications

The initial pre-surgical assessment can result in different indications:

- i. The patient may be deemed eligible for direct consideration of MBS upon the absence of contraindications and the presence of adequate motivation. This qualification is met when no clinical conditions necessitate

further investigation or management, ensuring the patient's physical and mental readiness for the procedure. Additionally, a robust level of motivation should be evident as a crucial psychosocial determinant for optimal outcomes.

- ii. The patient may be considered for bariatric surgery, with a preceding and subsequent psychotherapeutic and/or pharmacological regimen, contingent upon the presence of relative contraindications such as maladaptive eating behaviors or EDs, severe anxiety, depression, or insufficient motivation. In instances where MDD or BD is identified, pharmacological adjustments may be necessary to balance the impact of bariatric surgery on drug absorption, including dose and formulation modifications (e.g., transitioning from tablets to drops).

For those engaged in psychotherapy, completion of the entire therapeutic course is imperative. Afterward, a comprehensive further assessment, encompassing a clinical interview and the employment of psychometric tools (e.g., EDI-3 for EDs and maladaptive eating behaviors, SCID-5-CV, or specific rating scales tailored to psychiatric disorders), becomes essential for a precise evaluation of significant improvement and/or clinical remission.

Patients necessitating pharmacological intervention should undergo a thorough psychiatric evaluation aligned with the associated disorder, and an adequate treatment period must be granted to achieve and observe clinically stable remission. For example, in conditions like MDD or BD, complete sustained remission requires a minimum of two months without significant symptoms, as stipulated by the DSM-5-TR [80, 81]. Employing relevant psychometric tools can assist in validating clinical improvement and remission, thereby determining eligibility for MBS. This approach allows a rigorous assessment of patients, necessitating further support to ensure optimal conditions for MBS.

Patients with low motivation or external LC could benefit from cognitive-behavioral techniques, such as cognitive restructuring- to identify and challenge negative beliefs and replace them with self-empowering thoughts [82].

- iii. The patient is deemed ineligible for MBS due to the presence of one or more contraindications, including acute severe mental illness, intellectual disability, current alcohol abuse (AUD) or substance use disorders (SUD). These contraindications pose a considerable risk of clinical de-compensation, which may also be exacerbated by the influence of surgery on drug absorption. Additionally, such conditions can result in an incapacity to manage the post-surgical nutritional

schedule. This collective set of contraindications underscores the necessity for caution and alternative intervention strategies, acknowledging the potential impact of surgery on the patient's mental health. Figure 2 summarizes the pre-surgical indications and management.

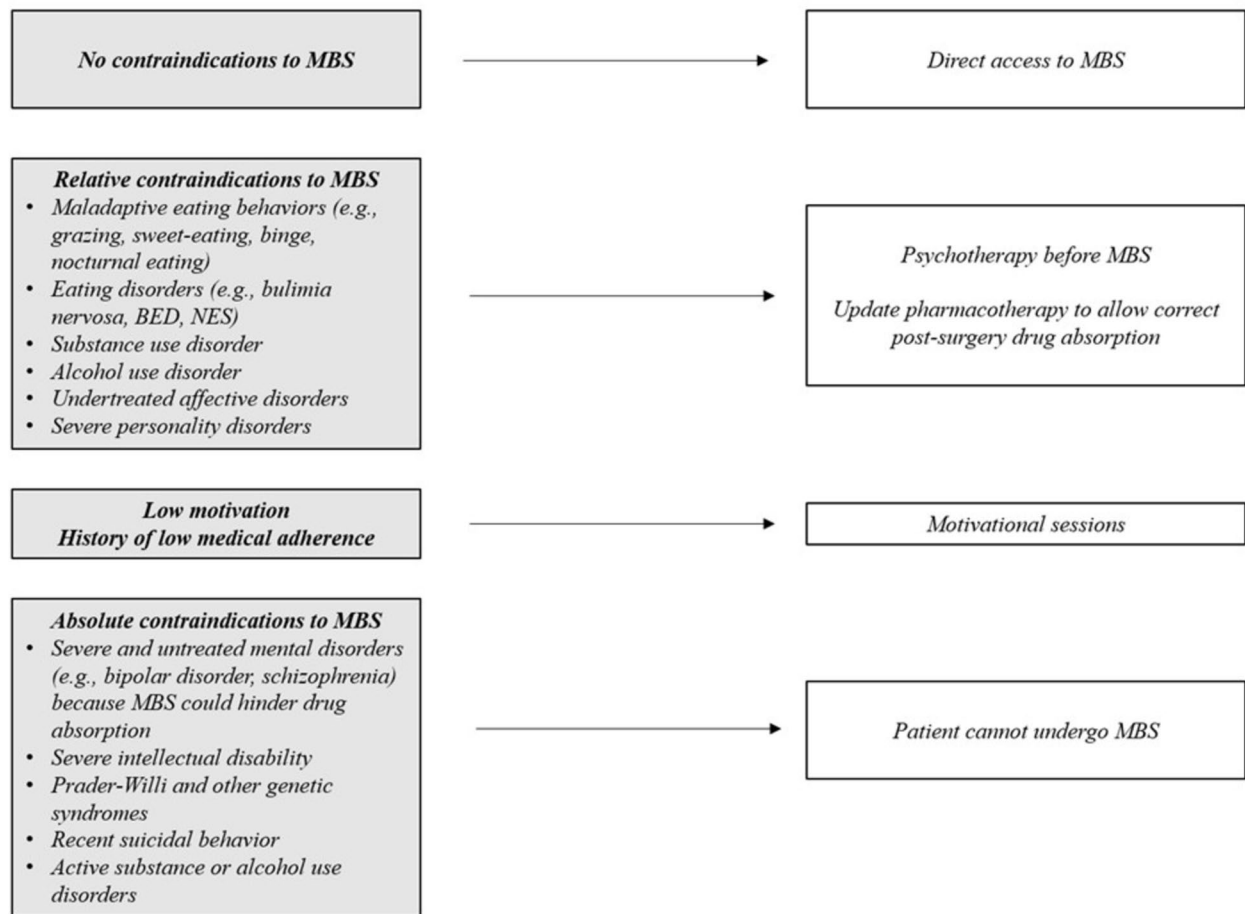
## Post-surgical follow-up

The follow-up serves a multipurpose role encompassing monitoring, prevention, and intervention to support patients throughout the weight loss and maintenance phases. This follow-up is intrinsically linked with nutritional monitoring to ensure comprehensive care. Robust evidence underscores the positive impact of post-surgical follow-up on patients' coping abilities and clinical outcomes [19, 83].

Telemedicine or phone interviews can represent an additional instrument to enhance patient compliance, since it allows patients to receive follow-up care regardless of their location, reducing the need for travel [84]. An improved patient engagement to follow-up can also be useful to improve patient engagement and support them with their treatment plan and improve adherence to postoperative guidelines. A recent study showed how the majority of patients reported a positive experience with telemedicine-based follow-up, appreciating the convenience and accessibility of virtual appointments [85], that can be especially useful for those residing in underserved areas, reducing the need for travel and associated temporal and financial resources. Concerns may raise regarding telemedicine's challenges, such as the absence of physical contact, limited technology access and privacy concerns about the security of patient data during consultations. However, hybrid care models involving in-person visits can ensure an effective integration of telemedicine into follow-up protocols, accommodating individual preferences.

A structured post-surgical follow-up program is imperative for every patient undergoing MBS. This program aims to foster acceptance of a new body image and support the patient through the required lifestyle changes. Key objectives include enhancing patients' ability to establish meaningful connections with their environment, self-care practices, incorporating physical activities, and reinforcing adjusted dietary habits [86, 87].

Since there is no definitive consensus on the acceptable extent of post-surgical weight regain, patients experiencing any weight gain or insufficient weight loss may struggle with guilt and shame feelings, potentially leading to drop-out from the follow-up. Consistent follow-up must help patients control such emotions and fortify their motivation to achieve sustained weight loss. A tailored follow-up strategy can promote psychological well-being, subsequently contributing



**Fig. 2** Pre-surgical assessment outcomes and management. *BED* Binge Eating Disorder, *MBS* Metabolic and Bariatric Surgery, *NES* Night Eating Syndrome

to long-term successful outcomes. Figure 3 summarizes the different follow-up flowcharts.

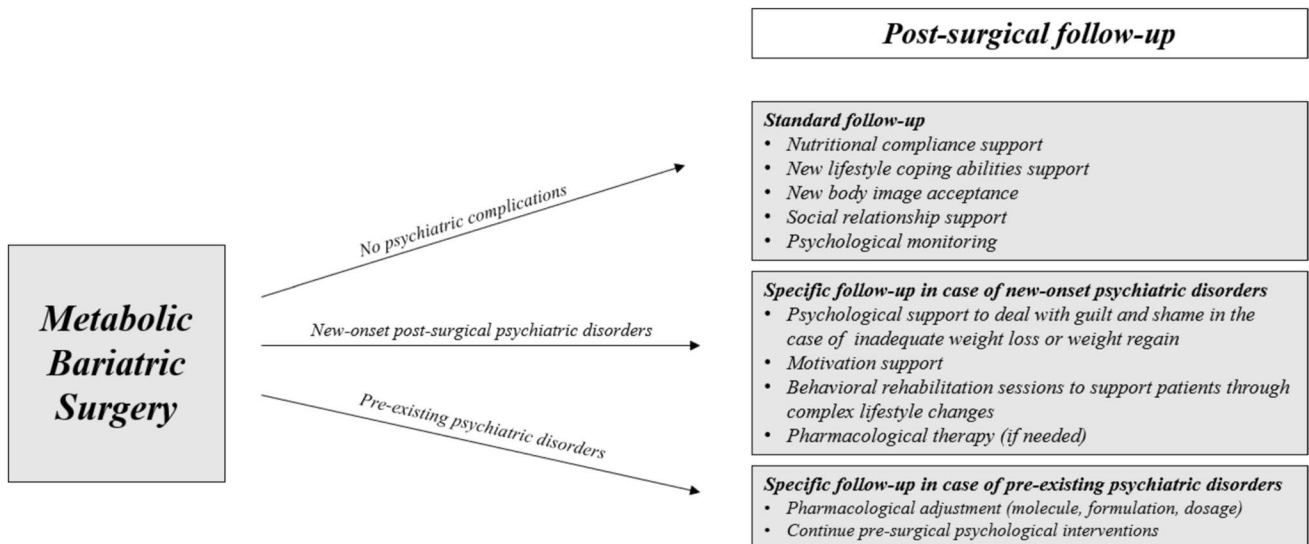
**Standard follow-up procedure**

In the absence of new-onset or recrudescence of post-surgical mental health conditions, the standard follow-up procedure applies. The follow-up should start one month after the reintroduction of a solid diet and must include clinical interviews designed to reinforce post-surgical nutritional compliance and develop a therapeutic alliance. Therefore, it is necessary to enhance patient coping abilities. A bimonthly monitoring should persist with until the patient achieves a significant weight loss occurs. Upon weight loss stabilization, group psychotherapy may be helpful to support the reinforcement of the new body image, across its cognitive, emotional and perception components [69, 88]. The follow-up program is also helpful to identify eventual new-onset psychiatric disorders, disordered eating, and EDs. MBS patients exhibit a higher suicide risk compared to their counterparts with obesity who do not undergo surgery [35, 89].

Hence, a clinical evaluation must include a careful monitoring for suicidal ideation. Furthermore, it must support the patient coping abilities through the new lifestyle, encompassing the changes in eating behavior, the introduction of physical activity, and adjustments in social and working relationships. Table 2 summarizes the standard follow-up schedule.

**Follow-up in case of post-surgical new-onset mental disorders**

Post-surgical metabolic changes, malabsorption challenges, obstacles in adapting to lifestyle changes, lack of social support and the stress of coping with the follow-up procedures can exacerbate pre-existing and latent psychiatric disorders, thereby influencing weight outcomes [90]. The interplay of such factors can endanger the mental well-being and precipitate new-onset disorders [9]. Notably, MDD and SUD stand out as the most commonly arising conditions after MBS [91, 92]. They can significantly compromise clinical outcomes, necessitating prompt intervention, relying on timely and



**Fig. 3** Post-surgical follow-up summary. Post-surgical psychological follow-up must be patient-tailored and must account for pre-existing and new-onset psychiatric disorders. Such customization allow to

provide personalized mental health support in order to improve post-surgery outcomes

**Table 2** Standard follow-up schedule

Follow-up interviews after MBS	Topics	Purposes
<i>First interview: One month after MBS, once solid diet is resumed</i>	Post-intervention nutritional compliance Clinical assessment	i. Establish a therapeutic alliance ii. Evaluate and support patient’s motivation iii. Monitoring potential new-onset psychiatric diseases
<i>Bimестrial interviews until significant weight loss</i>	Food and motivation appraisal Patient coping abilities through the new lifestyle	i. Re-evaluate patient’s motivation ii. Nutritional support iii. Follow-up satisfaction judgment
<i>Group psychotherapy: Once weight stabilizes</i>	Emotions and perceptions of the new the body image	i. Construction of new body image
<i>One and three months after group psychotherapy</i>	Body image reinforcement Social relationships	i. Support acquired awareness ii. Social reinforcement iii. Monitoring of psychological state
<i>Semestral interviews (for five years after MBS)</i>	Appraisal of stressful events Appraisal of patient’s changes in lifestyle Patient’s relation with food Social conditions	i. Supervise the patient’s psychological state ii. Support weight loss maintenance

MBS Metabolic and Bariatric Surgery

tailored psychological and pharmacological interventions. Also, patients can develop new-onset EDs (i.e., AN, BN), especially those with a pre-existing thin body idealization, due to their fear of weight gain and the inability to control hunger [93, 94]. These conditions may benefit from individual or group psychotherapy or psychoeducational training to reduce shame and guilt feelings, addressing disordered eating behaviors [95]. The psychotherapeutic approach choice should acknowledge the different patients’ characteristics and aligning with their needs and preferences. Thereby, the choice of the therapeutic model should account for the

different mental health conditions that can emerge. For instance, cognitive-behavioral therapy is among the most evidence-supported approaches for post-surgical eating disorders (e.g., [96, 97]) since it addresses specific cognitive distortions associated with such eating behaviors. On the other hand, dialectical-behavioral therapy can be helpful for emotional eating [98] as well as in SUD by providing skills to manage emotional regulation and reduce harmful behaviors [99]. In instances where the lifestyle change coping mechanisms prove inadequate, behavioral management sessions proved effective in supporting patient motivation

through adversities [95, 100]. The psychotherapy choice must also account for the practicalities of implementation of a certain approach since some modalities can be challenging in logistics (e.g., group psychotherapy can be hard to organize) or underrepresented or not available by the public health system. Specific procedures and interventions of this particular follow-up should always complement the standard follow-up procedures to assist the patient through the complex scenario of new-onset mental disorders.

### Follow-up in case of pre-existing mental disorders

Patients with pre-existing mental disorders identified during the pre-surgical assessment must continue the psychotherapeutic or pharmacological intervention to ensure ongoing mental health support. Specifically, concerning the pharmacological interventions, many MBS surgical procedures can hinder drug absorption [101]. Hence, different molecules, dosages and/or formulation (e.g., transitioning from tablet to oral solution) may be required. Discontinuation of pharmacological treatments should be avoided since it can increase the risk of post-surgical exacerbations of the symptomatology. The post-surgical continuity of individual or group psychotherapy is essential for pre-surgical maladaptive eating behaviors, considering they can hinder weight loss. It must be remarked that the eating pattern can adjust in response to the altered gastrointestinal settings (e.g., a binge behavior can transition to grazing). Cognitive-behavioral therapy has emerged as a helpful therapeutic approach, proving effective in supporting weight loss and reducing weight regain risk factors, such as disordered eating behaviors and depression [102, 103]. Pre-existing mental health condition should be considered when tailoring the post-surgical follow-up and psychotherapy approach, accounting for the continuum between mental well-being and weight outcomes.

### Conclusions

Despite mental health evaluation is highly emphasized by National and International Guidelines, to the best of our knowledge, no international guidelines or position statements describe a standardized psychological pre- and post-surgical approach for MBS candidates. This paper aims to propose a model for standardized psychological and psychiatric procedures to ensure a consistent standard of care for bariatric surgery candidates, regardless of their geographical location. Standard protocols seek to bridge regional disparities in healthcare delivery, thereby providing equivalent and high-quality preoperative and postoperative psychological support to all patients undergoing bariatric surgery. It may represent a clinical model for mental health providers to support MBS candidates' mental health status throughout

the surgery process and could stand as a basis for future guidelines. By implementing a structured and standardized approach, consistency and reliability can be ensured in the mental health care among bariatric surgery candidates. This model addresses the current gaps in clinical practice, where variability in psychological evaluations can lead to inconsistent care, increasing the risk of misidentification of potential 'Trojan horses' that may result in decompensation or difficulties in following the post-surgical program. By addressing these conditions preoperatively, healthcare providers can tailor interventions to improve the mental health and overall well-being of patients, thereby optimizing surgical results. Beyond merely diagnosing disorders, the mental health evaluations should offer a profound understanding of coping mechanisms, personality traits, and behavioral patterns that collectively help in personalize supportive psychological or psychopharmacological care, when necessary, with the ultimate goal of improving clinical outcomes. To further establish the efficacy and the feasibility of the proposed model, long-term follow-up comparative studies will be needed to assess its impact on patient outcomes, including weight loss, post-surgical mental health, and quality of life.

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**Ethical approval** This article does not contain any studies with human participants or animals performed by any of the authors.

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