

# CASE SERIES STUDY ON MENTALIZATION-BASED GROUP THERAPY FOR ADULTS WITH OBESITY FOLLOWING BARIATRIC SURGERY

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## SUMMARY

**Background:** Obesity is a multifaceted condition with biological, psychological, and social determinants. Despite the effectiveness of bariatric surgery for severe obesity, long-term outcomes often depend on the patient's psychological adjustment and capacity for behavioral change. Emerging evidence suggests that mentalization, i.e., the ability to understand behavior in terms of mental states, may play a key role in sustaining these changes. To explore the effects of a group intervention on psychological functioning, reflective function, and health-related behaviors in individuals following bariatric surgery.

**Methods:** This multiple case study involved five cisgender women with class I obesity post-bariatric surgery referral. Three participants completed a six-month MBT group intervention. Assessments included the CORE-OM, the RFQ, and open-ended experiential questions administered pre- and post-intervention. Quantitative data were analyzed using descriptive and visual methods; qualitative data were analyzed with lexical co-occurrence analysis using T-LAB software.

**Results:** Quantitative results indicated improvements in psychological symptoms, well-being, and reflective functioning. RFQ scores reflected reduced hypomenthalization and hypermentalization. Lexical analysis revealed a thematic shift from concrete concerns with body weight and dietary control to more relational, emotionally nuanced, and self-reflective language. Participants reported increased emotional regulation, improved interpersonal functioning, and greater insight into their health-related behaviors.

**Conclusions:** MBT may enhance post-surgical adjustment by fostering reflective capacity and emotional awareness in individuals with obesity. These findings support the integration of mentalization-focused approaches in obesity treatment to address the psychological complexities underlying health behavior change.

**Key words:** mentalization - mentalization-based treatment – obesity - psychological adjustment - reflective functioning

**Abbreviations:** MBT - Mentalization Based Treatment; ED - Eating Disorders; CORE-OM - Clinical Outcomes in Routine Evaluation–Outcome Measure; RFQ - Reflective Functioning Questionnaire; BMI - Body Mass Index; BED - Binge Eating Disorder; FA - Food Addiction

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## INTRODUCTION

Obesity, a complex condition defined by excess body fat, can cause severe complications like heart attack and stroke (Segal & Gunturu 2024, Rubino et al. 2025). Diagnosis now includes measures beyond BMI, such as direct fat assessment or anthropometrics, due to BMI's limitations (Rubino et al. 2025). The biopsychosocial model highlights biological, psychological, and social factors (Engel 1977). Obesity often involves psychological distress and comorbidities, increasing anxiety and depression risk, with related eating disorders like BED (Décaire-Spain et al. 2021). Social factors may worsen distress and treatment adherence (Fabricatore & Wadden 2004). Bariatric surgery is a key treatment, requiring psychiatric evaluation (ASMBS, n.d.; Di Lorenzo et al. 2020). Within this framework, mentalization - the capacity to understand one's own and others' behaviors as driven by mental states - is a key concept in obesity treatment (Fonagy et al. 2016).

Mentalization-Based Therapy (MBT) improves reflective functioning and has proven effective in borderline personality disorder and eating disorders (Bateman & Fonagy 2016, Pedersen et al. 2015; Smits et al. 2022).

## SUBJECTS AND METHODS

The initial sample included five female participants referred after pre-bariatric assessment. Two discontinued after seven sessions and were excluded, leaving three participants who completed the full six-month group MBT intervention and assessments. This small sample aligned with the study's exploratory, idiographic design focusing on in-depth individual psychological changes. Participants were Caucasian females, heterosexual, aged 18–65, with overweight or obesity, no severe medical or psychiatric comorbidities, and fluent in Italian. After surgery, they joined a multidisciplinary follow-up including diet and physical activity.

Assessments at baseline (T0) and post-intervention (T1) involved standardized questionnaires and open-ended questions. The intervention consisted of bi-weekly 90-minute group sessions over six months, co-led by psychodynamic and Jungian psychotherapists, with a trainee observer transcribing sessions for qualitative analysis. Following a manualized mentalization-based model (Robinson et al. 2016), sessions targeted awareness of self and others' mental states emphasizing "here and now" interpersonal processes.

## Measures

Participants completed an ad hoc sociodemographic questionnaire designed to collect information on sex, age, gender identity, sexual orientation, weight, height, marital status, employment status, and educational level. The CORE-OM (Evans et al. 2000) is a 34-item self-report questionnaire that assesses psychological distress experienced in the previous 7 days. It evaluates domains: (1) subjective well-being, (2) psychological problems/symptoms (e.g., depression, anxiety, physical symptoms, trauma), (3) functioning (e.g., general, social, and close relationships). Higher scores indicate greater severity of distress. The Italian version of the CORE-OM has demonstrated good psychometric properties in both clinical and non-clinical adult populations (Palmieri et al. 2009). The RFQ (Fonagy et al. 2016) is a self-report scale that measures reflective functioning (RF) across two subscales: Certainty about mental states (RFQ\_C): Measures confidence in understanding one's own and others' mental states. Moderate scores indicate flexible and adaptive reflective functioning. Uncertainty about mental states (RFQ\_U): Reflects confusion or difficulty in understanding mental states. Lower scores are indicative of better reflective functioning. The Italian validation of the RFQ confirmed its reliability and usefulness in assessing reflective functioning in adults (Morandotti et al. 2018). To assess experiential change, participants were asked to respond to a set of open-ended questions administered during the first (T0) and final (T1) group sessions. The questions targeted five key domains: Symptoms, Functioning, Well-being, Emotions and Reflection.

## Data Analysis

Descriptive statistics were calculated for participants' demographics and scores on CORE-OM and RFQ, analyzing only those who completed both T0 and T1 assessments (per-protocol). Changes over time were examined via visual inspection of individual trajectories, following Lane and Gast's (2014) single-case time series guidelines. Open-ended responses from group sessions were analyzed using T-LAB software for lexical co-occurrence, identifying semantic networks and language patterns related to eating symptoms and mentalization, to systematically explore participants' subjective experiences (Lancia 2012).

## RESULTS

All five participants were cisgender, heterosexual Caucasian women, mean age 50.4 years (range 22–65), with a mean BMI of 32.19 (Class I obesity). Three were married, two singles; three employed, one unemployed. All had a history of obesity/overweight and were recruited post-bariatric surgery referral; average BMI was 33.42. No major psychiatric or severe medical conditions were reported (Table 1). Three participants completed the six-month MBT group and assessments. CORE-OM scores showed reduced global distress, with improvements in Symptoms, Functioning, and Well-being subscales. For example, Participant 1's Symptom score decreased from 1.88 to 1.05 (below female norms), and similar improvements occurred in other domains. Participant 2 showed clinically meaningful symptom reduction (3.25 to 1.91), while Participant 3 maintained low distress levels (Tables 2–3).

RFQ scores indicated enhanced reflective functioning, with increases in Certainty and decreases in Uncertainty subscales, suggesting more balanced mentalizing. These changes indicate improved metacognitive clarity and emotional insight across participants. Overall, MBT participation was linked to better psychological symptoms, interpersonal functioning, well-being, and reflective capacity, supporting its role in promoting psychological and behavioral recovery post-bariatric surgery in complex cases (Tables 2–3).

**Table 1.** Sociodemographic characteristics of participants

Participant	Sex	Weight (kg)	Waist (cm)	BMI (kg/m <sup>2</sup> ) T0	BMI (kg/m <sup>2</sup> ) T1
P1	Female	73	152	31.06	34.63
P2	Female	78	150	34.67	33.78
P3	Female	-	-	32.69	-
P4	Female	96	165	35.26	30.85
P5	Female	-	-	-	-

**Table 2.** Participant scores on the CORE-OM scales at T0 and T1

Participant	Scale	Baseline	T1	Clinical Female Normative Mean (SD)	Interpretation
1	CORE OM Symptoms	1.88	1.05	2.00 (0.86)	Below the mean at baseline, much lower at T1 (improvement)
	CORE OM Functioning	1.38	0.94	1.68 (0.69)	Below the mean, improves at T1
	CORE OM Well-being	2.18	0.95	2.47 (0.94)	Near the mean at baseline, strong improvement at T1
2	CORE OM Symptoms	3.25	1.91	2.00 (0.86)	Above mean (high distress), improved significantly at T1
	CORE OM Functioning	1.83	1.41	1.68 (0.69)	Slightly above mean, improved but still elevated
	CORE OM Well-being	2.50	1.50	2.47 (0.94)	Above the mean at baseline, improved at T1
3	CORE OM Symptoms	0.50	0.33	2.00 (0.86)	Well below mean (low distress)
	CORE OM Functioning	0.50	0.33	1.68 (0.69)	Well below mean, good functioning
	CORE OM Well-being	0.50	0.25	2.47 (0.94)	Well below mean, high well-being

**Table 3.** Participant scores on the RFQ scales at T0 and T1

Participant	Scale	Baseline	T1	Clinical Mean	Normative SD	Interpretation
1	RFQ Certainty	0.50	1.30	5.29	3.64	Measures difficulty in understanding one's own and others' mental states; high scores indicate hypomentalization
	RFQ Uncertainty	0.60	0.33	5.88	3.86	Measures excessive confidence in understanding one's own and others' mental states; high scores indicate hypermentalization
2	RFQ Certainty	0.50	1.30			
	RFQ Uncertainty	0.83	0.66			
3	RFQ Certainty	2.00	1.30			
	RFQ Uncertainty	0.83	0.83			

The analysis conducted using T-LAB 10.6 revealed a significant change in participants' verbal representations between T0 and T1. Language shifted from a focus on symptoms and bodily control to a more relational, emotionally aware, and self-reflective discourse. This linguistic evolution appears to reflect a possible increase in reflective functioning and emotional awareness that emerged over the course of the intervention. Full results are presented in Table 4.

## DISCUSSION

The results of this exploratory study suggest that MBT may represent a valuable psychotherapeutic adjunct in the care of individuals with obesity, particularly in the post-bariatric surgery phase. Improvements

observed across quantitative and qualitative measures point to a clinically meaningful enhancement in participants' psychological functioning, reflective capacity - domains that are often compromised in this population. Consistent with prior research, participants showed reductions in psychological distress (as measured by the CORE-OM), with improvements noted across symptomatology, daily functioning, and overall well-being. Furthermore, the RFQ results revealed decreased levels of both hypomentalization and hypermentalization, indicating a shift toward more balanced and flexible mentalizing processes. This is of particular relevance, as previous research has identified impaired reflective functioning as a core feature contributing to maladaptive eating behaviors (Robinson et al. 2016). The linguistic shift detected in the qualitative analysis -

**Table 4.** Lexical occurrences and co-occurrence

	Words	T0		T1		
		$\chi^2$	p	Words	$\chi^2$	p
Symptom	Diet	14.16	0.000	Begin	7.438	0.006
	Hunger	14.16	0.000	Make	5.865	0.015
	Begin	10.27	0.001	Eat	4.337	0.037
	Kg	4.61	0.032			
	Shape	5.043	0.025			
	Lose	5.04	0.025			
Functioning	Search	5.26	0.022	Home	13.45	0.000
	Years	3.86	0.049	Son	10.11	0.001
	Take	3.86	0.049	Daughter	6.73	0.009
Well-being				Right	6.73	0.009
	Shape	30.55	0.000	Find	11.94	0.001
	Begin	11.48	0.001	Search	4.16	0.041
	Before	8.24	0.004	Control	4.77	0.029
	Live	8.72	0.003	Familiar	4.77	0.029
	Mother	6.78	0.009	Children	4.77	0.029
Emotion				Right	4.77	0.029
	Meaning	9.77	0.002	Make	4.77	0.029
	Doctor	5.22	0.022	Bodily	5.23	0.022
	Day	5.22	0.022	Teenager	7.83	0.005
				Live	6.50	0.011
				Problems	7.89	0.005
Reflection	Understand	11.11	0.001	Work	12.55	0.000
	Intra-gastric balloon	7.40	0.006	Thought	9.96	0.002
	Miss	7.40	0.006	View	5.66	0.017
	Feel	5.26	0.022	Die	4.77	0.029

from concrete, body-focused language to more emotionally nuanced and relationally oriented discourse - provides convergent evidence for the development of reflective and integrative capacities. These changes suggest that participants were not only acquiring insight into their behaviors and emotions but were also beginning to articulate these internal states more coherently and meaningfully. Such developments are key markers of increased mentalization capacity, which MBT specifically targets. These findings align with previous work highlighting the transdiagnostic applicability of MBT beyond Borderline Personality Disorder, including its use in populations with eating disorders (Pedersen et al. 2015, Smits et al. 2022, Robinson et al. 2016). Notably, this study adds to the small but growing body of research suggesting that obesity is not solely a metabolic or behavioral disorder, but one deeply rooted in biopsychosocial vulnerabilities (Huizar et al. 2022, Masood & Moorthy 2023). From this perspective, MBT's focus on improving awareness of internal states and interpersonal patterns could be especially well-suited to support long-term change after bariatric surgery, where traditional interventions often fall short in addressing these deeper psychological layers.

A major strength of this study lies in its mixed-method design, which integrates objective clinical data

with subjective experiential accounts. This allows for a richer, multi-dimensional understanding of change processes during MBT. Furthermore, the use of T-LAB software for lexical analysis represents an innovative approach for detecting subtle shifts in mental representation and emotional processing, often difficult to capture through standardized measures alone. Clinically, these results underscore the importance of incorporating structured psychotherapeutic interventions into multidisciplinary obesity treatment programs - especially those targeting reflective functioning. MBT could fill a crucial gap in post-bariatric by promoting psychological resilience, enhancing treatment adherence, and reducing the risk of relapse. This study is not without limitations. The small sample size and lack of a control group limit the generalizability of the findings. Additionally, the dropout of two participants - though not unusual in long-term psychological interventions - highlights potential barriers to engagement that should be explored further. The sample was also demographically homogeneous (middle-aged, cis-gender women of Caucasian ethnicity), limiting the extrapolation of results to more diverse populations. Lastly, the absence of long-term follow-up data precludes conclusions about the durability of the observed improvements.

Future research should aim at replicating these findings in larger and more diverse samples, ideally through randomized controlled trials with long-term follow-up. It would also be useful to explore whether MBT has a preventive effect on weight regain and relapse into dysfunctional eating patterns post-surgery. Additional work is warranted to adapt MBT protocols to the specific cognitive and emotional profiles of individuals with obesity and to integrate them more seamlessly within existing multidisciplinary care pathways.

## CONCLUSION

This case series study provides preliminary evidence that MBT may offer psychological benefits for individuals with obesity, and thus with the associated psychological aspects of this condition, particularly in the post-bariatric surgery phase. Participants who completed the MBT intervention showed improvements in reflective functioning, psychological well-being, and interpersonal relationships.

These findings support the theory that impaired mentalization may be a transdiagnostic vulnerability underlying both emotional dysregulation and maladaptive eating behaviors in obesity. MBT appears to facilitate greater self-awareness and the development of adaptive coping strategies, which are critical to sustaining long-term behavioral change following bariatric surgery. Given the limited availability of evidence-based psychotherapeutic interventions specifically tailored for obesity, this study highlights MBT as a promising and theoretically grounded approach worthy of further empirical investigation. Due to the limited sample size of the study, larger-scale studies with control groups and long-term follow-up are needed to confirm its effectiveness.

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Veronica Raspa: conceptualization, methodology, data curation, formal analysis, writing and original draft.

Patrizia Moretti: conceptualization, methodology, data curation and editing.

Francesca Di Maio & Francesca Bellucci: writing and original draft.

Margherita Guercini: data curation, writing and original draft.

Claudia Mazzeschi & Alfonso Tortorella: conceptualization, review, editing.

All authors approved the final manuscript.

## References

1. American Society for Metabolic & Bariatric Surgery: *Metabolic and bariatric surgery*. <https://asmbs.org/resources/metabolic-and-bariatric-surgery>
2. Bateman A, Fonagy P. *Mentalization-Based Treatment*. *Psychoanal Inq*. 2013 Nov;33(6):595-613.
3. Carbone EA, Aloï M, Rania M, de Filippis R, Quirino D, Fiorentino TV et al.: *The relationship of food addiction with binge eating disorder and obesity: A network analysis study*. *Appetite* 2023; 190: 107037.
4. Cornejo ML, et al.: *Hormonal regulation and reward-seeking behavior in obesity*. *Horm Res Paediatr* 2016; 86(4): 233–41.
5. Décarie-Spain L, Hryhorczuk C, Lau D, Jacob-Brassard É, Fisette A, Fulton S: *Prolonged saturated, but not monounsaturated, high-fat feeding provokes anxiodepressive-like behaviors in female mice despite similar metabolic consequences*. *Brain Behav Immun Health* 2021; 16: 100324.
6. Di Lorenzo N, Antoniou SA, Batterham RL, Busetto L, Godoroja D, Iossa A et al.: *Clinical practice guidelines of the European Association for Endoscopic Surgery (EAES) on bariatric surgery: update 2020 endorsed by IFSO-EC, EASO and ESPCOP*. *Surg Endosc* 2020; 34(6): 2332–58.
7. Engel GL: *The need for a new medical model: a challenge for biomedicine*. *Science* 1977; 196(4286): 129–36.
8. Evans CE, Mellor-Clark J, Margison F, Barkham M, Audin K, Connell J et al.: *Clinical Outcomes in Routine Evaluation: the CORE Outcome Measure (CORE-OM)*. *J Ment Health* 2000; 9: 247–55.
9. Fabricatore AN, Wadden TA: *Psychological aspects of obesity*. *Clin Dermatol* 2004; 22(4): 332–7.
10. Fonagy P, Luyten P, Moulton-Perkins A, Lee YW, Warren F, Howard S et al.: *Development and Validation of a Self-Report Measure of Mentalizing: The Reflective Functioning Questionnaire*. *PLoS One* 2016; 11(7): e0158678.
11. Frayling TM, Timpson NJ, Weedon MN, Zeggini E, Freathy RM, Lindgren CM et al.: *A common variant in the FTO gene is associated with body mass index and predisposes to childhood and adult obesity*. *Science* 2007; 316(5826): 889–94.
12. Huizar Y, Cundiff J, Schmidt A, Cribbet M: *Risky early family environment and genetic associations with adult metabolic dysregulation*. *Int J Environ Res Public Health* 2022; 19(21): 14032.
13. Lancia F: *The logic of the T-LAB tools explained*. T-LAB, 2012. <https://www.tlab.it>
14. Lane J, Gast D: *Visual analysis in single case experimental design studies: Brief review and guidelines*. *Neuropsychol Rehabil* 2014; 24(3–4): 445–63.
15. Masood B, Moorthy M: *Causes of obesity: a review*. *Clin Med (Lond)* 2023; 23(4): 284–91.
16. Morandotti N, Brondino N, Merelli A, Boldrini A, De Vidovich GZ, Ricciardo S et al.: *The Italian version of the Reflective Functioning Questionnaire: Validity data for adults and its association with severity of borderline personality disorder*. *PLoS One* 2018; 13(11): e0206433.
17. Palmieri G, Evans C, Hansen V, Brancaleoni G, Ferrari S, Porcelli P et al.: *Validation of the Italian version of the Clinical Outcomes in Routine Evaluation Outcome Measure (CORE-OM)*. *Clin Psychol Psychother* 2009; 16(5): 444–9.

18. Pedersen SH, Poulsen S, Lunn S: Eating disorders and mentalization: High reflective functioning in patients with bulimia nervosa. *J Am Psychoanal Assoc* 2015; 63(4): 671–94.
19. Robinson P, Hellier J, Barrett B, Barzdaitiene D, Bateman A, Bogaardt A et al.: The NOURISHED randomised controlled trial comparing mentalisation-based treatment for eating disorders (MBT-ED) with specialist supportive clinical management (SSCM-ED) for patients with eating disorders and symptoms of borderline personality disorder. *Trials* 2016; 17(1): 549.
20. Rubino F, Cummings DE, Eckel RH, Cohen RV, Wilding JPH, Brown WA et al.: Definition and diagnostic criteria of clinical obesity. *Lancet Diabetes Endocrinol* 2025; 13(3): 221–62.
21. Segal KR, Gunturu S: Pathophysiology of obesity: Epidemiology and clinical outcomes. *Endocrinol Metab Clin North Am* 2024; 53(2): 201–20.
22. Segal Y, Gunturu S: Psychological issues associated with obesity. In: *StatPearls*. StatPearls Publishing, 2024.
23. Smits ML, Feenstra DJ, Bales DL, Blankers M, Dekker JJM, Lucas Z et al.: Day hospital versus intensive outpatient mentalization-based treatment: 3-year follow-up of patients treated for borderline personality disorder in a multicentre randomized clinical trial. *Psychol Med* 2022; 52(3): 485–95.

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