

**S.I.C.O.B.
EVENTI**

S.I.C.O.B.

SICOB - EVENTO REGIONALE - ASL CUNEO 1

SALUZZO Venerdì, 22 Marzo 2024

RESP. SCIENTIFICI: ANDREA GATTOLIN, LAURA GIANOTTI

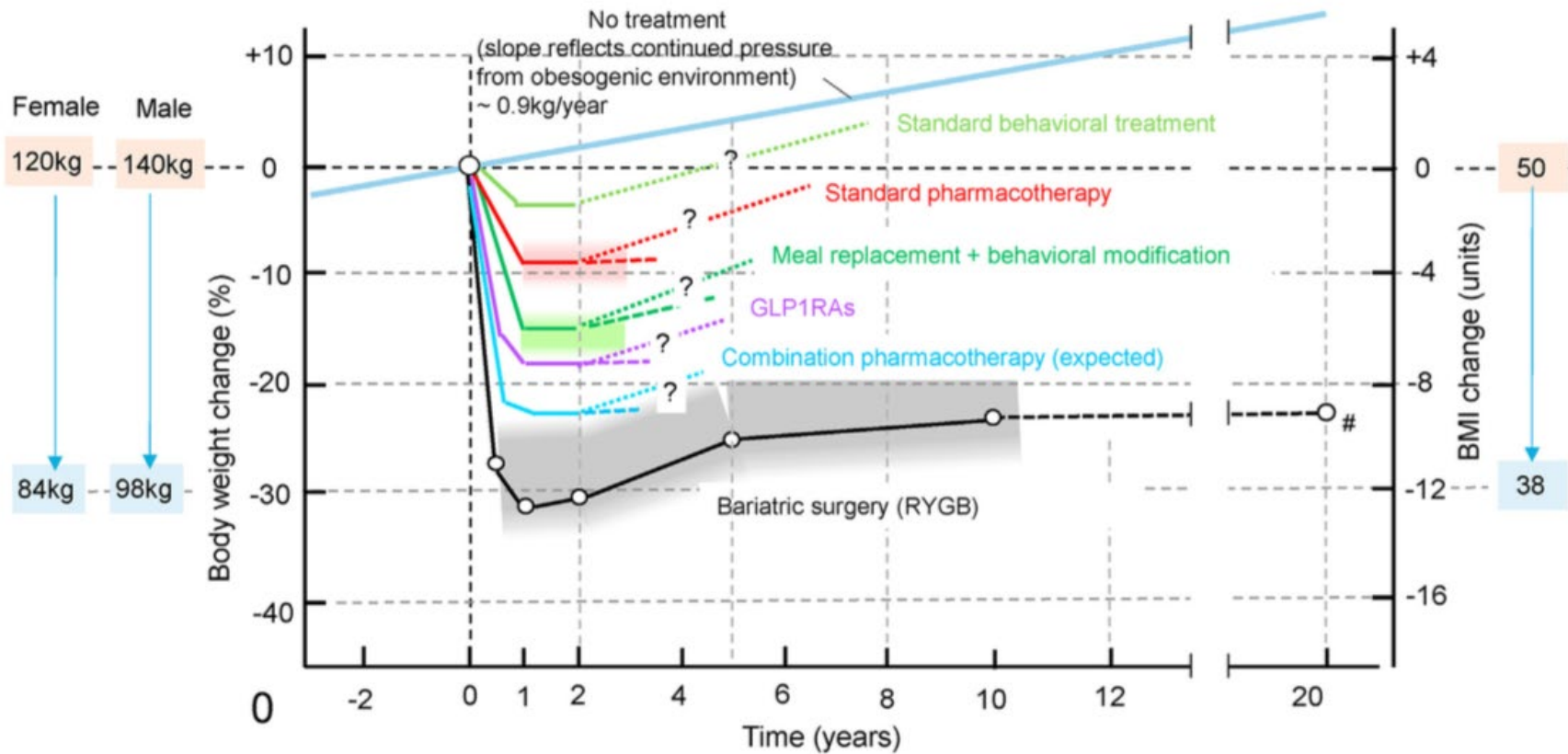
**L'OBESITÀ NEL 2024:
NUOVI MODELLI
E TRAGUARDI DI CURA**

Il follow up a lungo termine

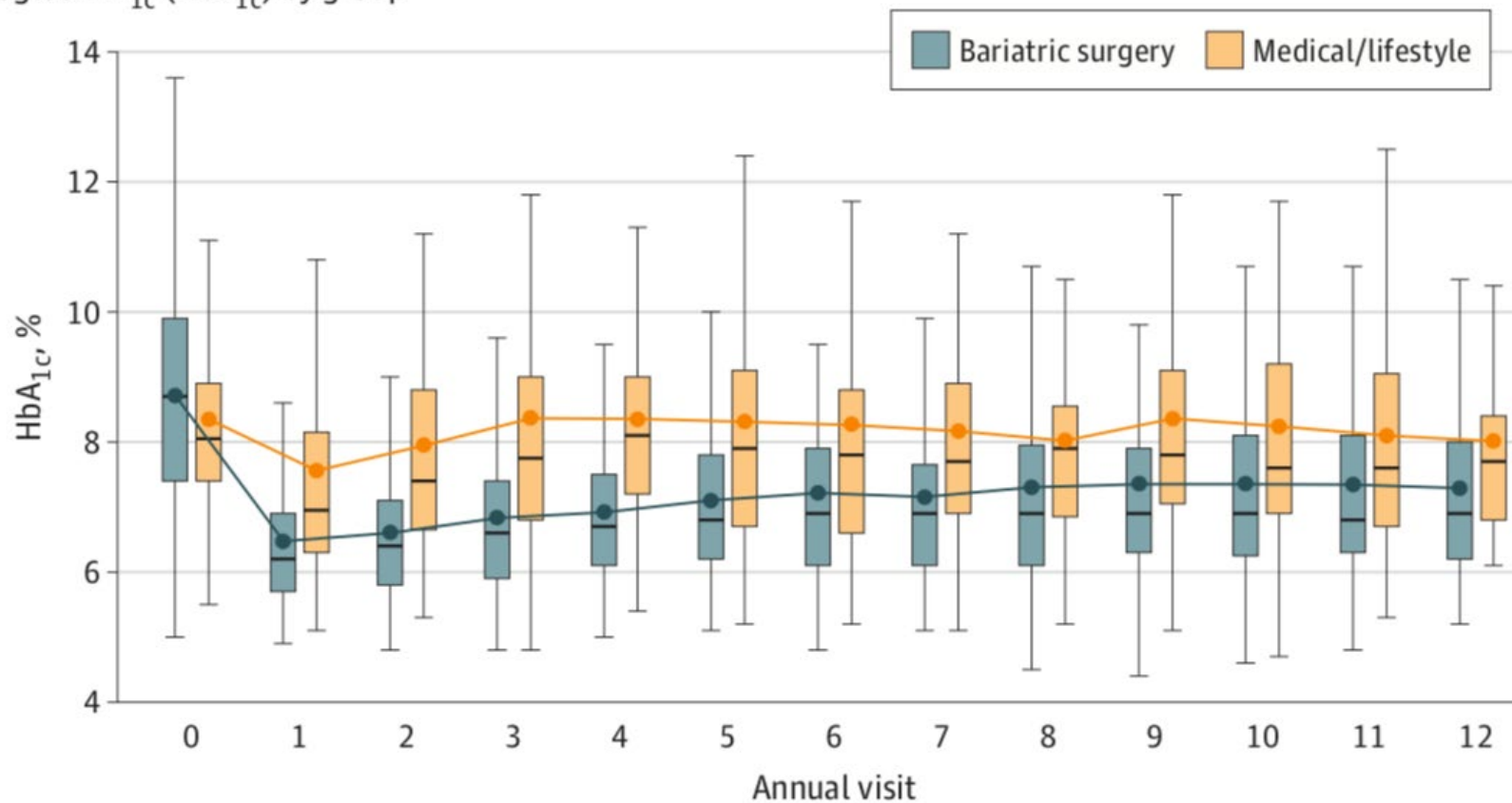
Damiano Maria Vallero

Natascia Rosolin

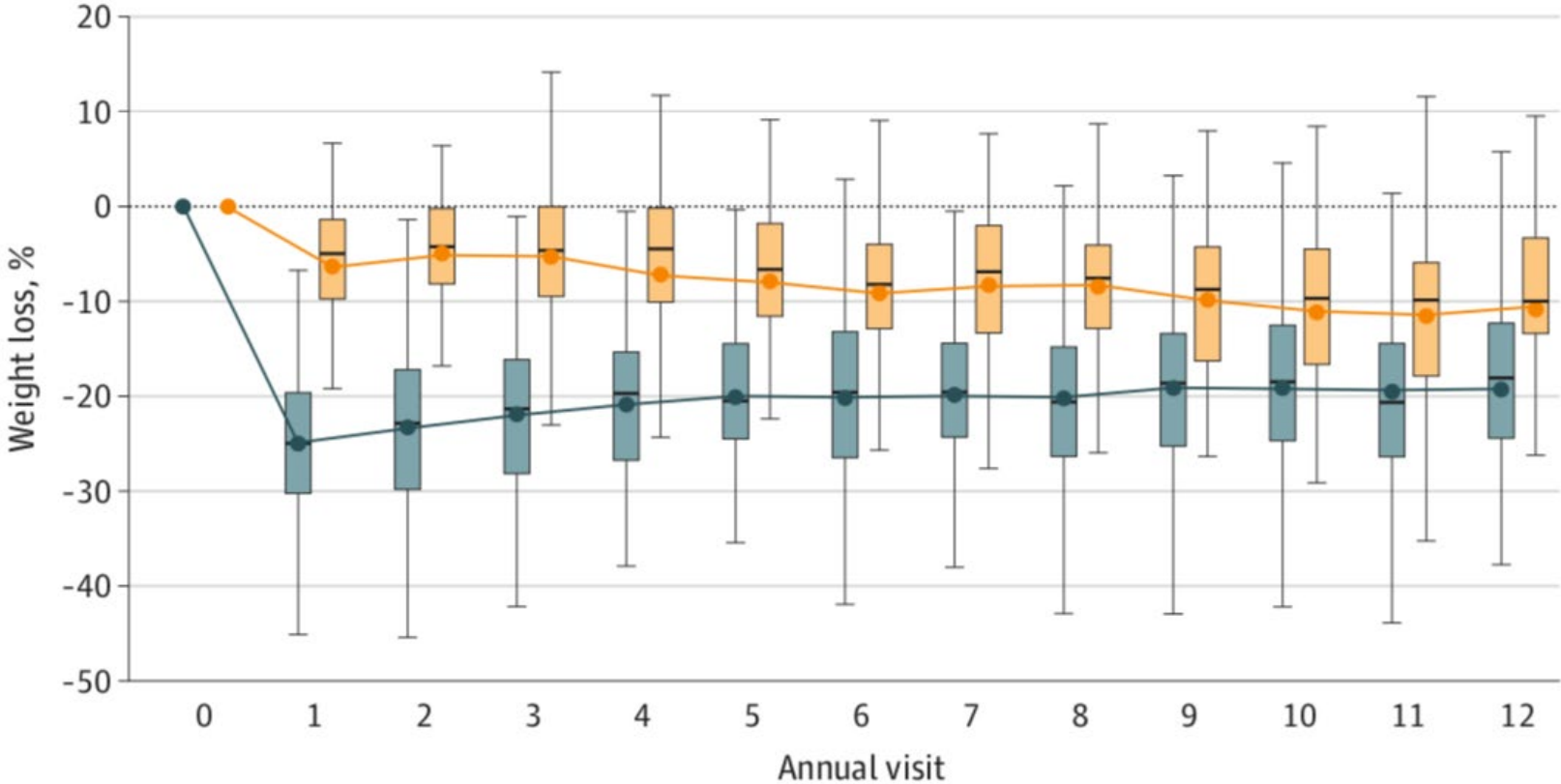
**SC Endocrinologia e Diabetologia
Territoriale ASL CN1**



Hemoglobin A_{1c} (HbA_{1c}) by group

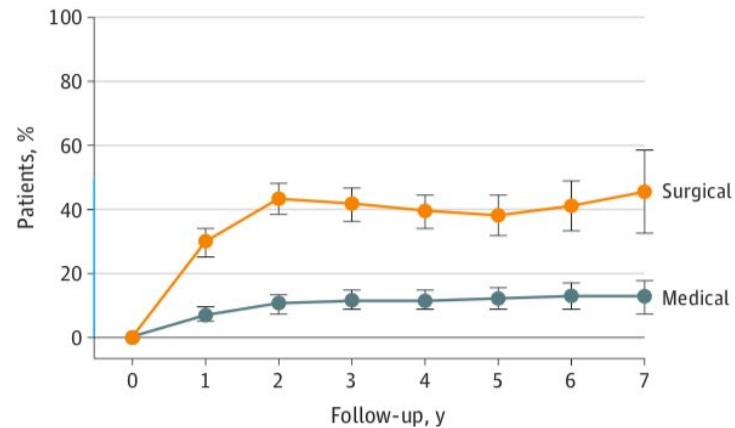


Weight loss

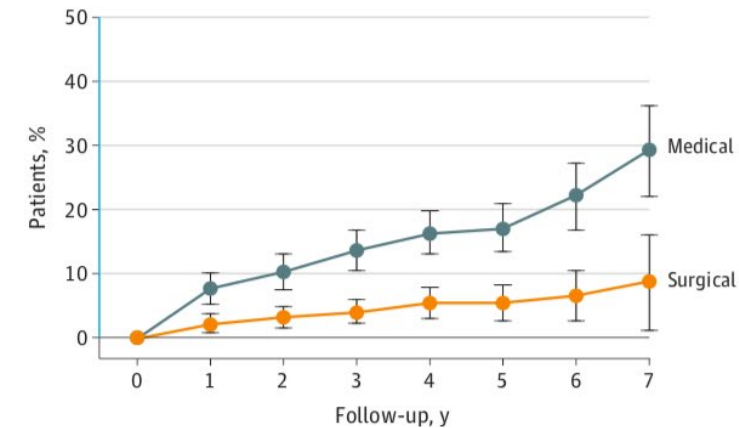


Courcoulas AP et al, Long-Term Outcomes of Medical Management vs Bariatric Surgery in Type 2 Diabetes, JAMA, 331:654-664, 2024

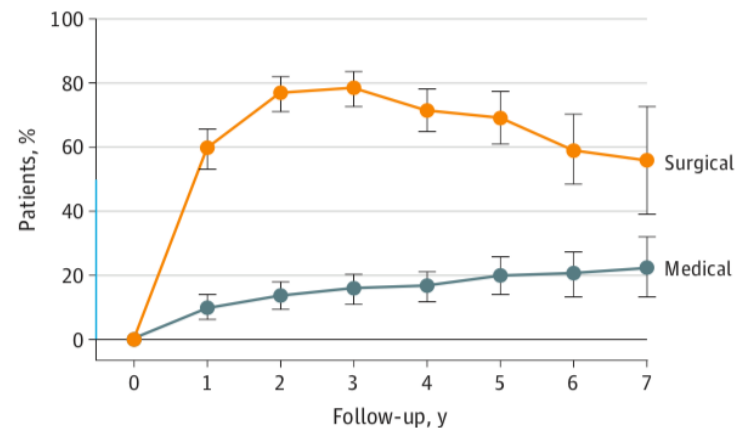
A Hypertension, remission



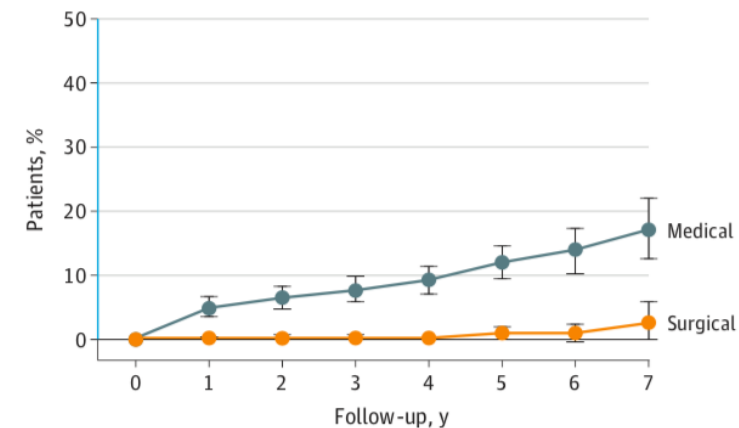
B Hypertension, new onset



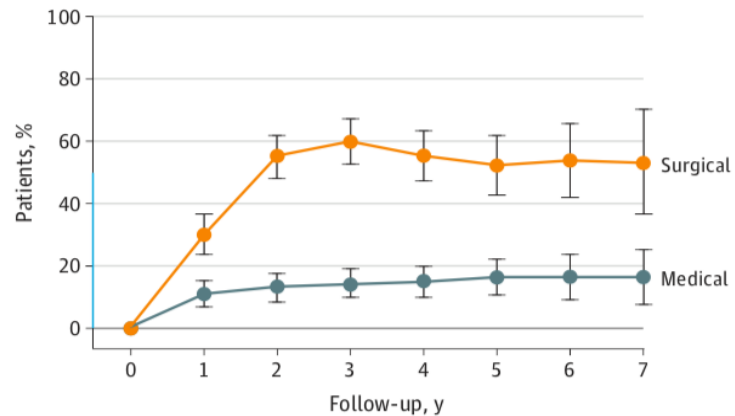
C Diabetes, remission



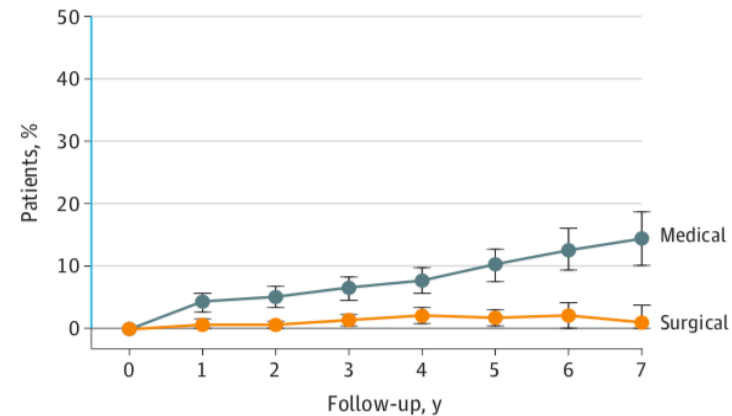
D Diabetes, new onset



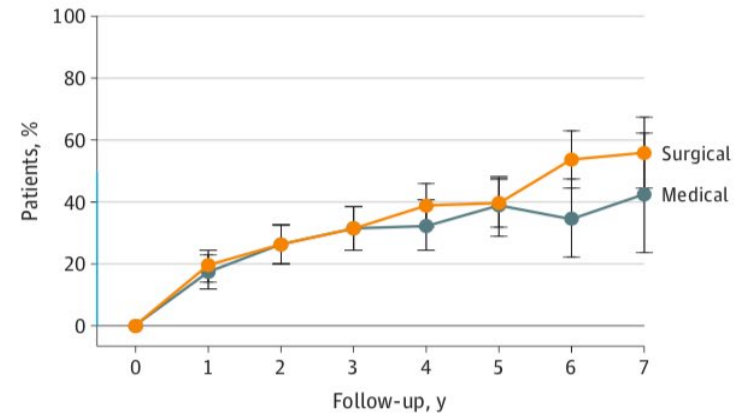
E Dyslipidemia, remission



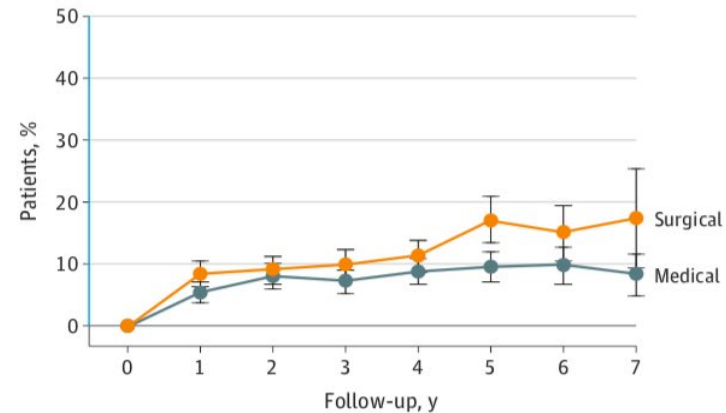
F Dyslipidemia, new onset

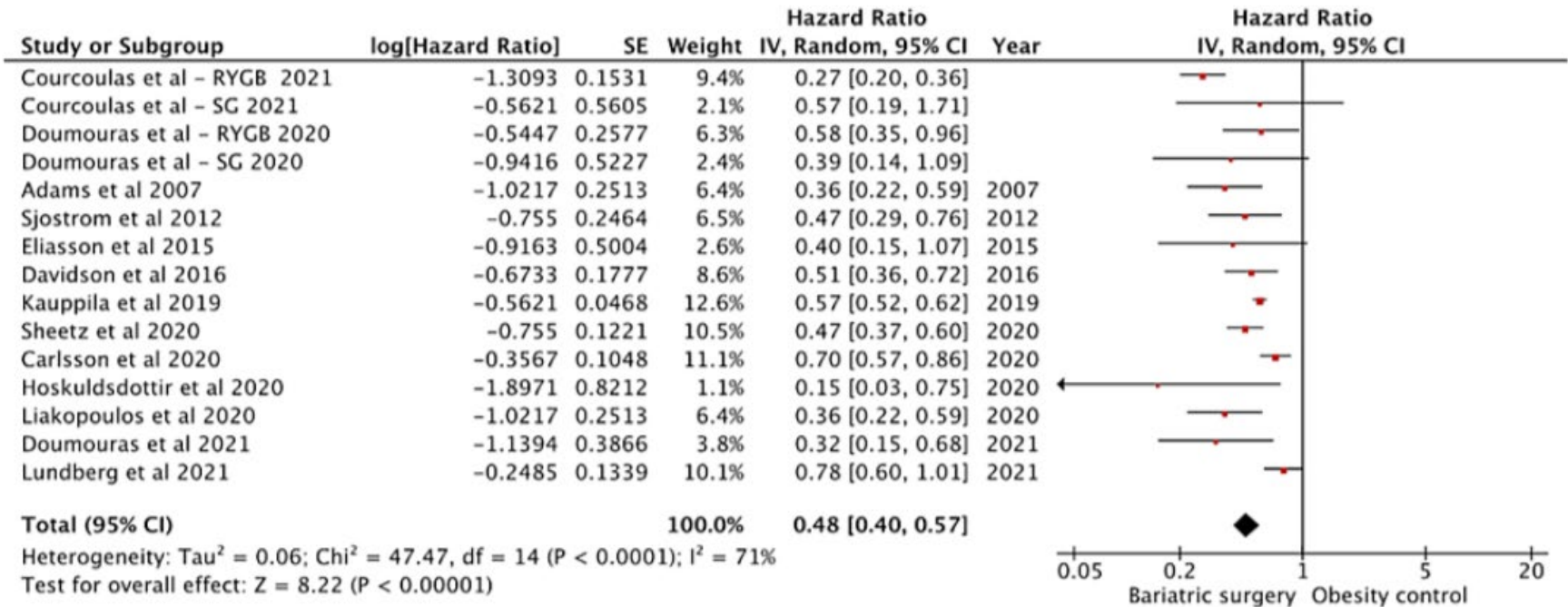


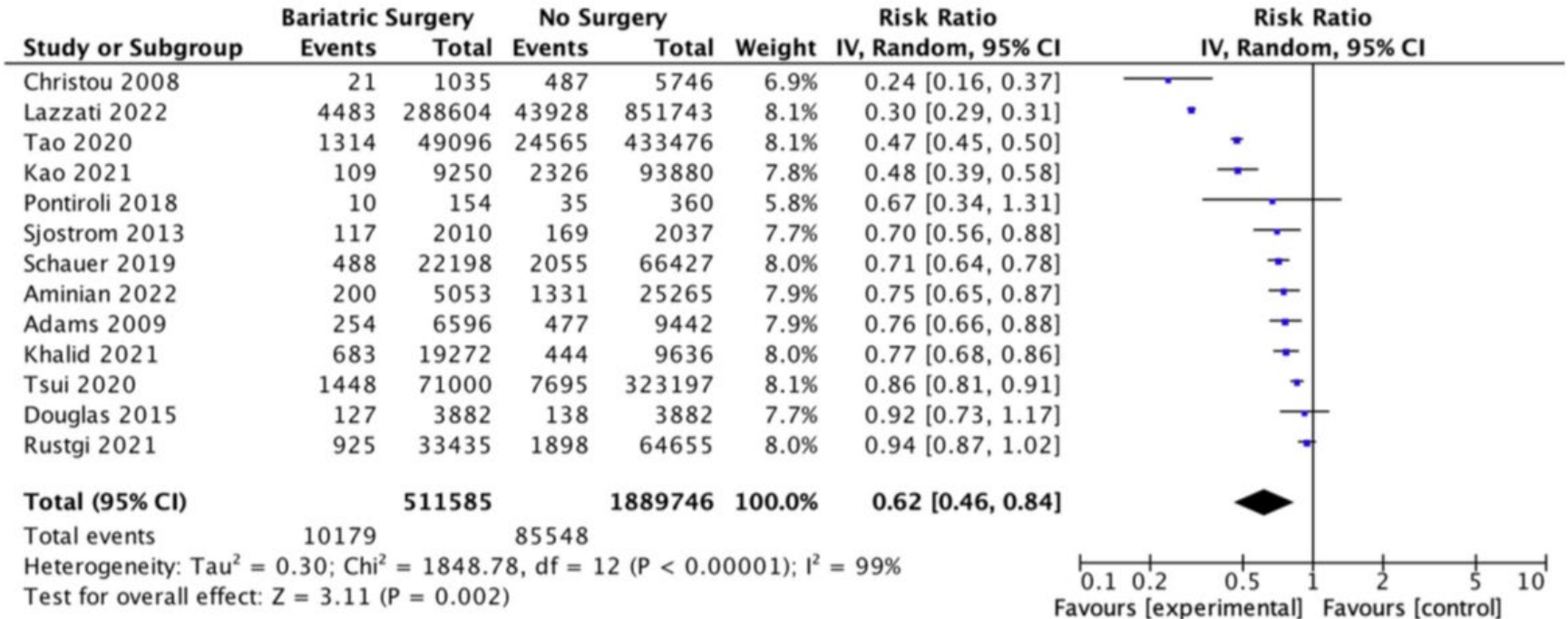
A Depression, remission

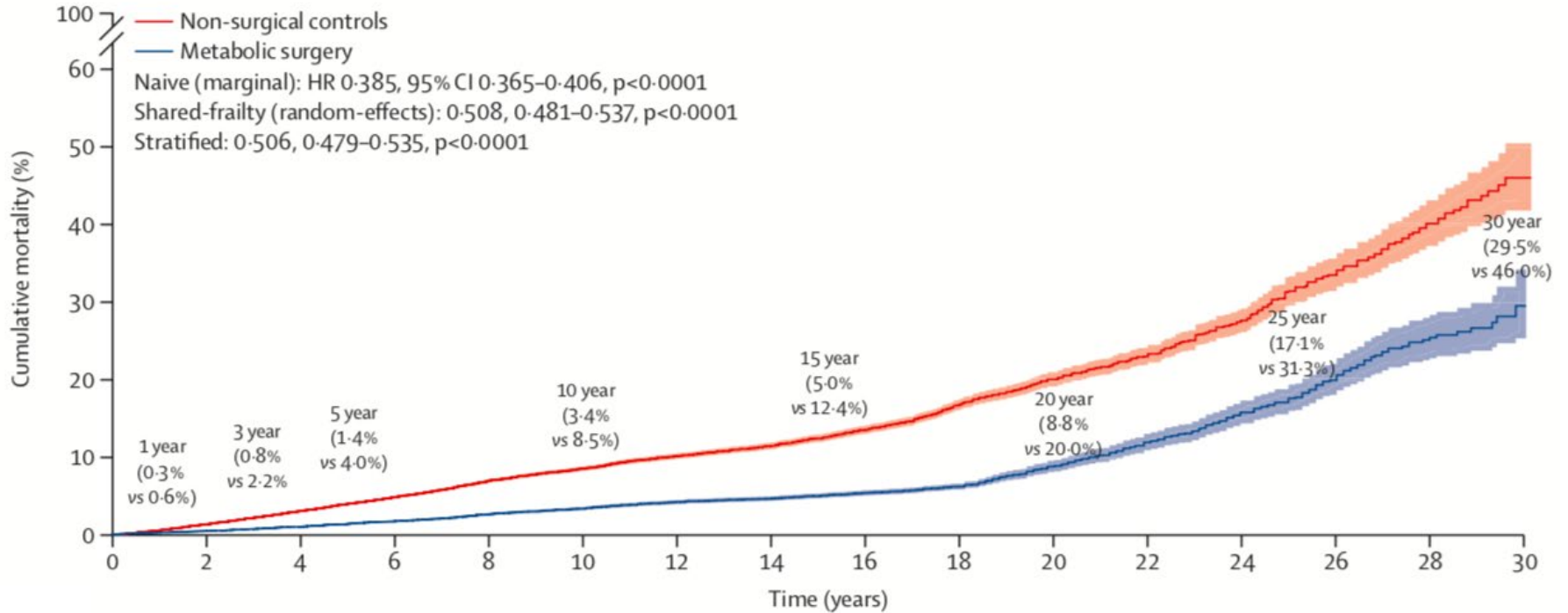


B Depression, new onset

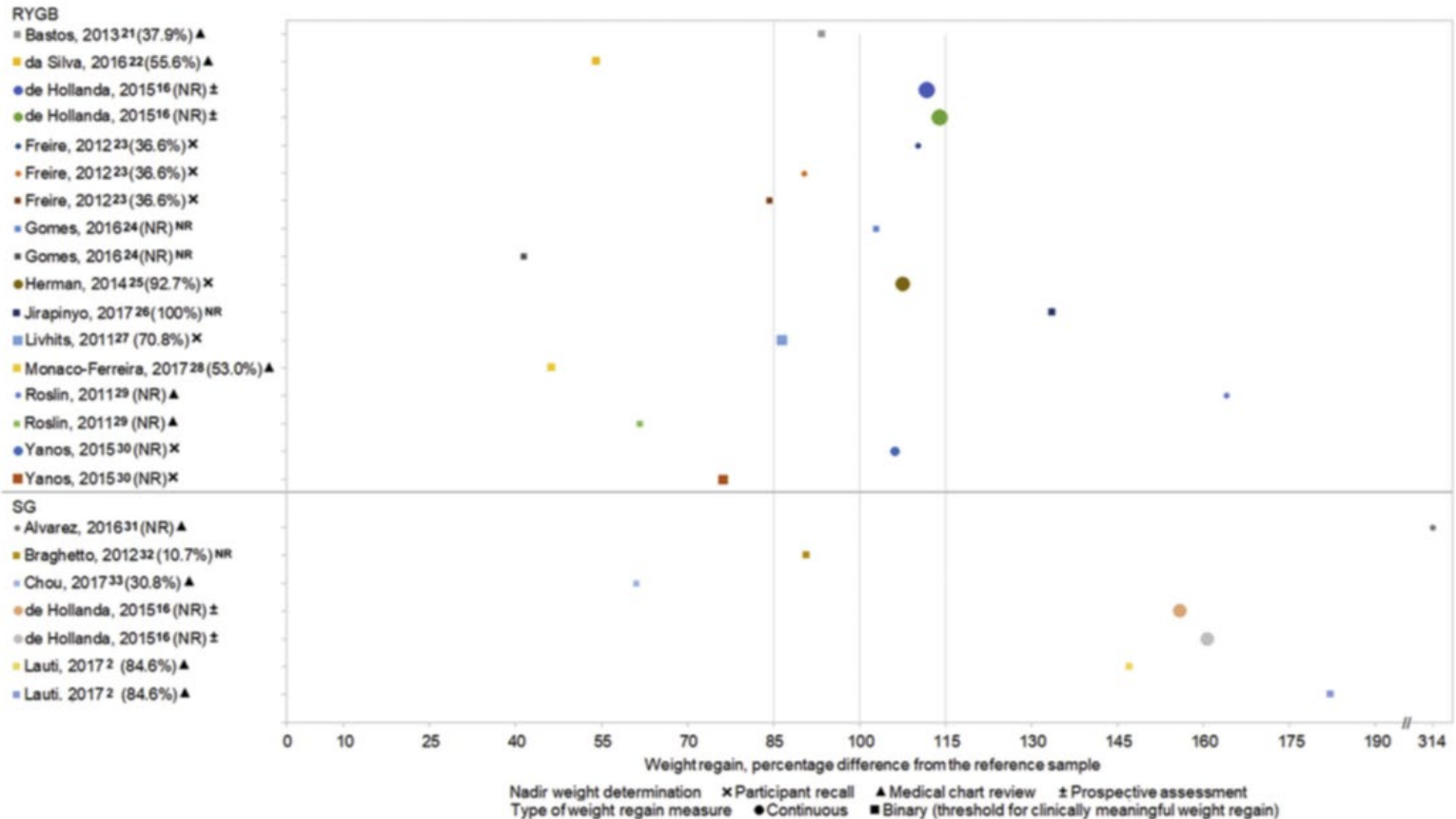








Syn NL et al, Association of metabolic-bariatric surgery with long-term survival in adults with and without diabetes: a one-stage meta-analysis of matched cohort and prospective controlled studies with 174 772 participants, *Lancet*, 397:1830-1841, 2021



King WC et al, *Weight regain after bariatric surgery: a systematic literature review and comparison across studies using a large reference sample*, *Surg Obes Relat Dis*, 16:1133-1144, 2020

HORMONAL CHANGES

OREXIGENIC HORMONES



↑ GHRELIN

↑ PYY

ANOREXIGENIC HORMONES

↑ GLP-1

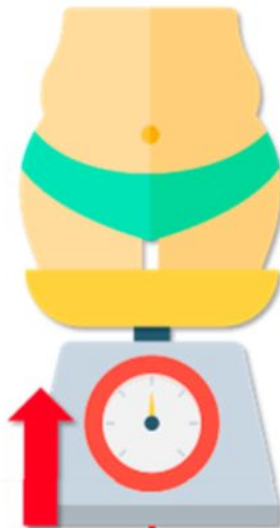


↑ HYPERINSULINEMIA
ACCELERATED GASTRIC
EMPTYING
↓ PLASMA GLUCOSE

↓ LEPTIN

↓ THYROID ACTIVITY
↓ SYMPATHETIC ACTIVITY
↑ CORTISOL
↑ ENDOCANNABINOIDS

WEIGHT REGAINANCE AFTER METABOLIC SURGERY



↓ SATIETY
↑ ENERGY INTAKE
HYPERPHAGIC BEHAVIORS

GASTRO-GASTRIC FISTULA



↑ GHRELIN

ADIPOSE TISSUE DYSFUNCTION

↑ LIPOGENESIS
HYPERTROPHY OF
ADIPOCYTES



ENERGY IMBALANCE

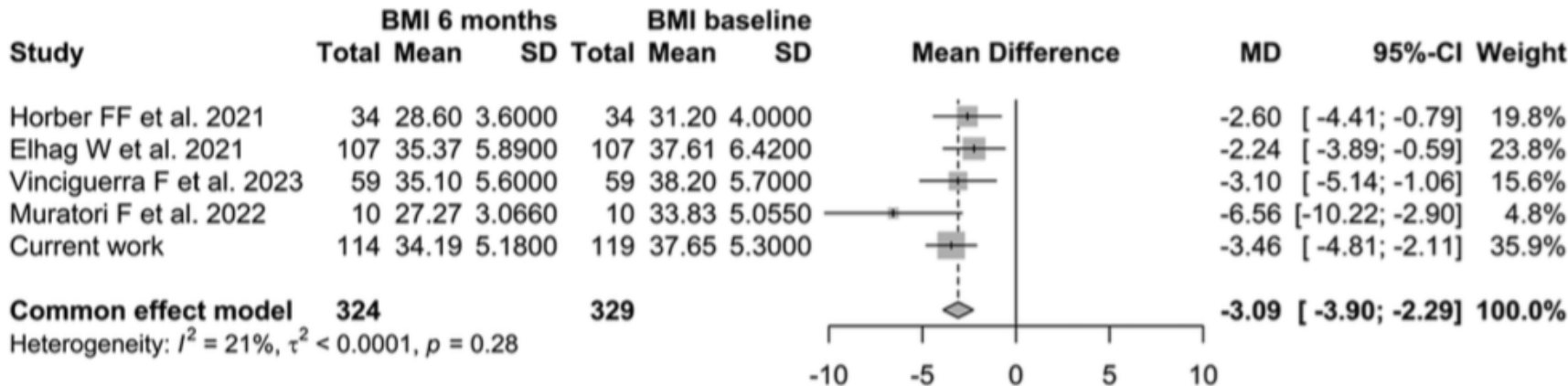
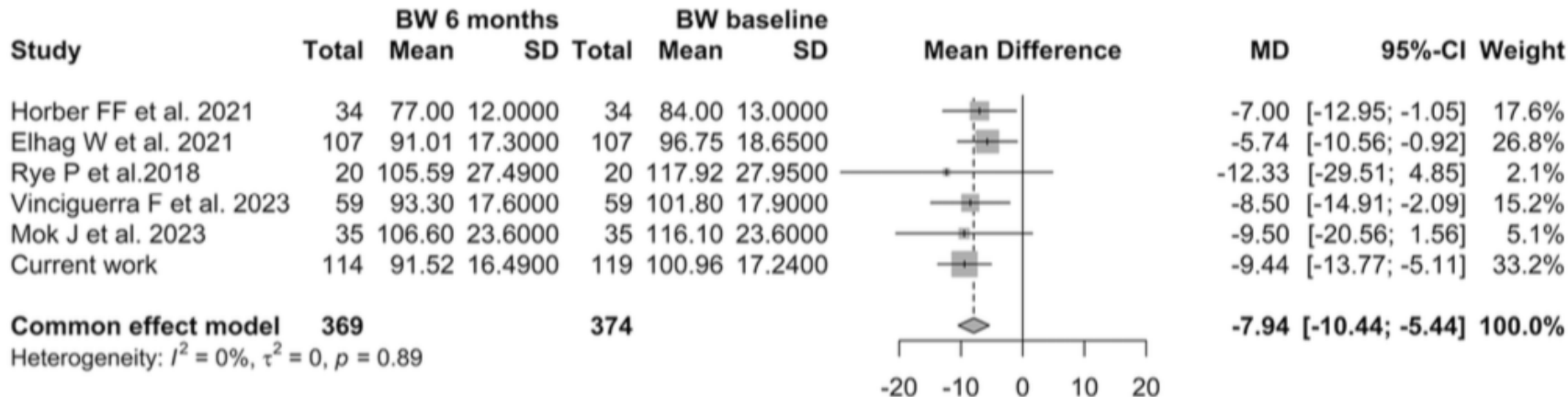


↓ BASAL METABOLISM
↓ ENERGY
EXPENDITURE AT REST

BEHAVIORAL FACTORS

↑ POSITIVE
REINFORCEMENT
↑ DESIRE TO EAT





Pharmacotherapy

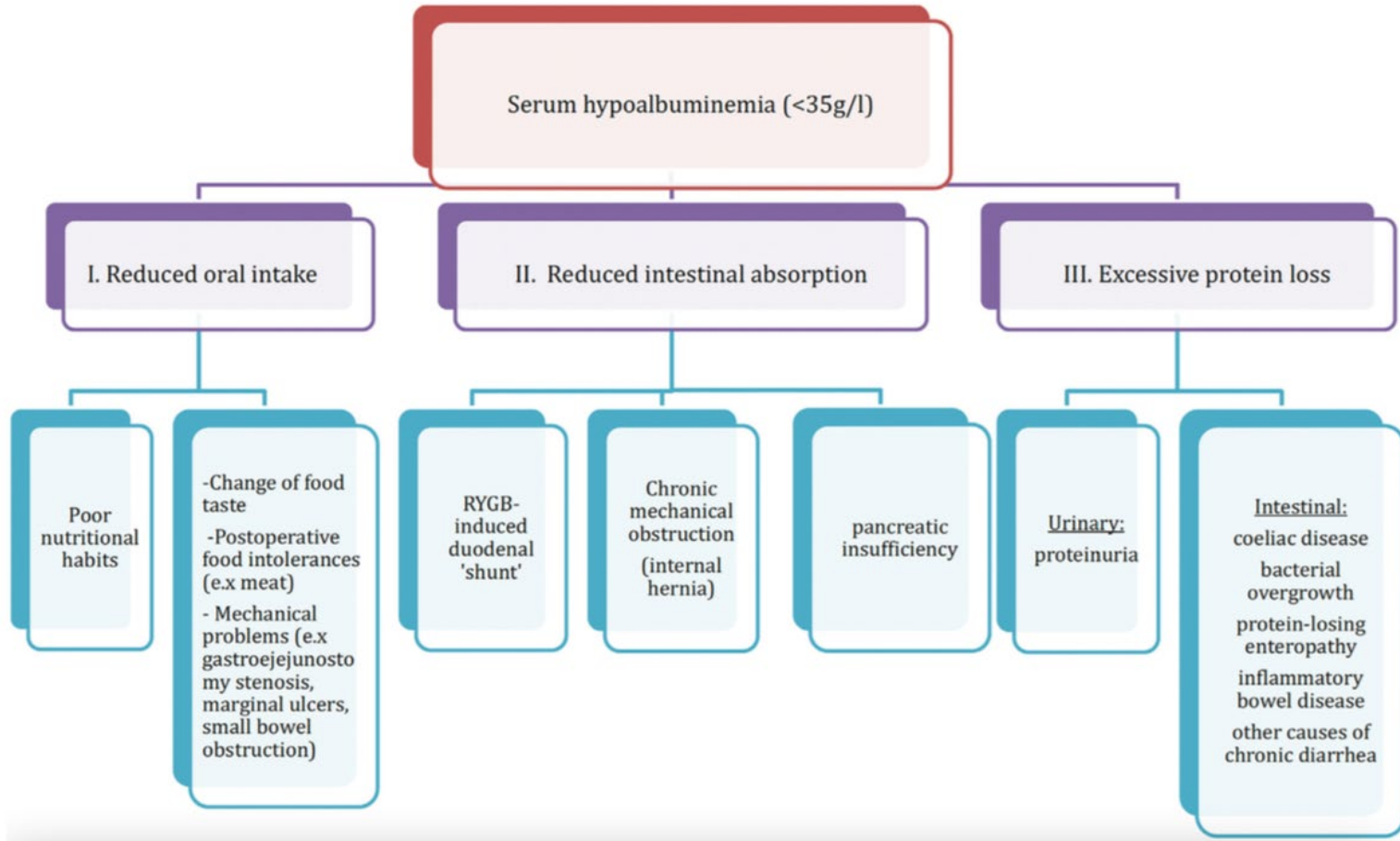
The %TWL was significantly higher in the “weight regain” group (**1.9 ± 4.3**) compared with the “insufficient weight loss” group (**0.7 ± 4.2**) [$p = 0.0067$]

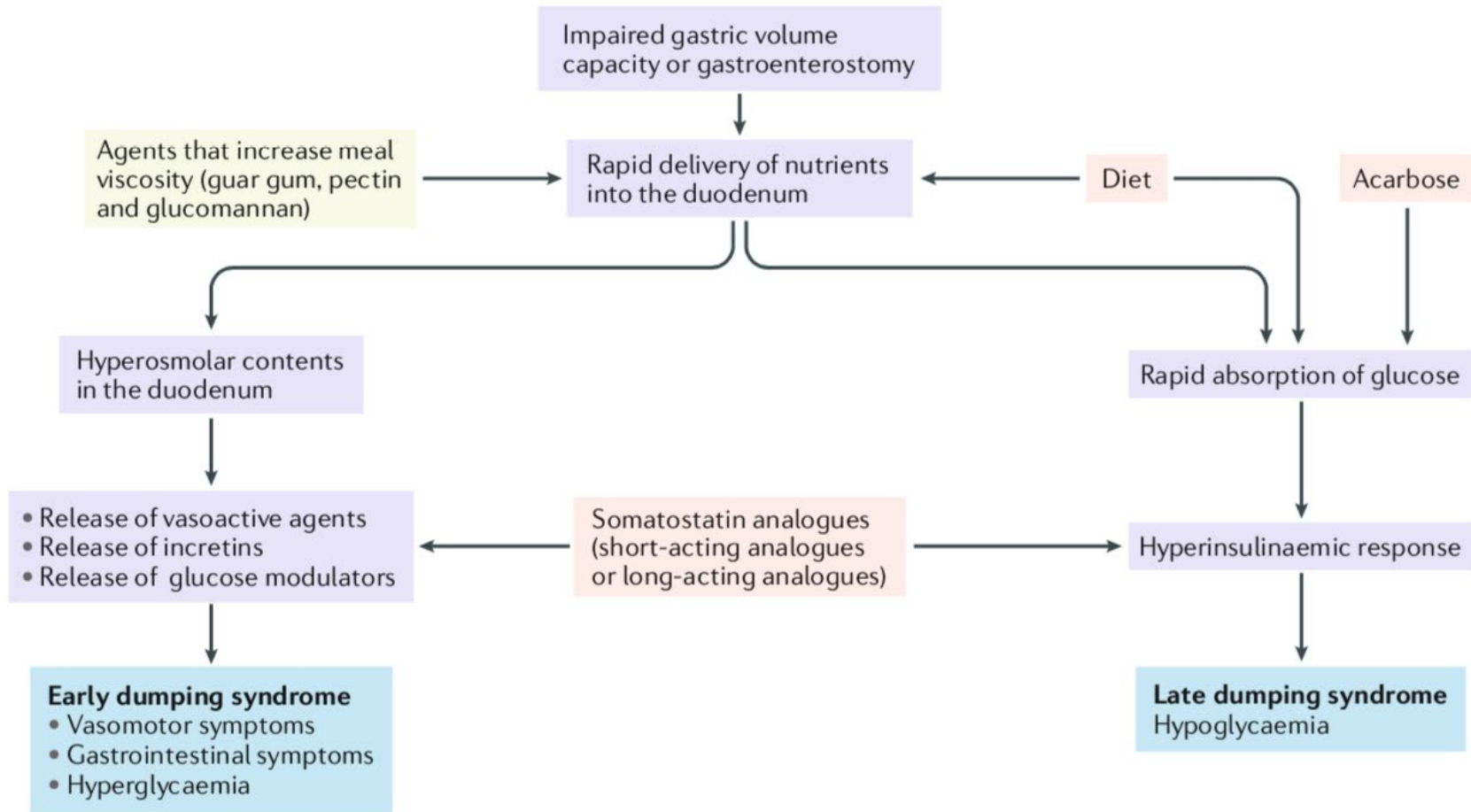
Revisional Surgery

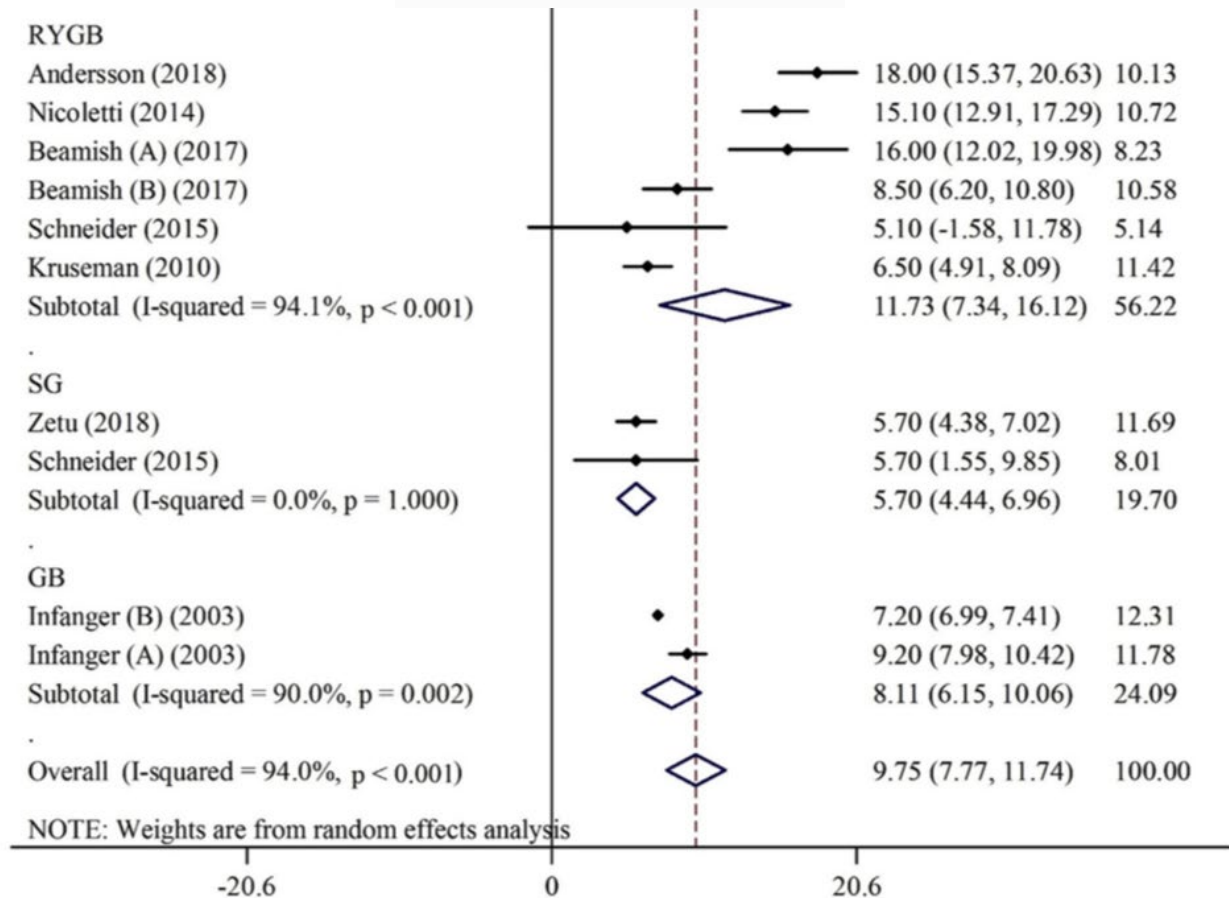
The %TWL was significantly higher in “insufficient weight loss” group (**23.8 ± 11.0**) compared to “weight regain” group (**17.2 ± 7.9**) [$p = 0.022$]

Protein malnutrition is a rare but potentially serious metabolic complication of proximal RYGB (Roux-en-Y gastric bypass), reported in a pooled median of 1.7% (range 0%-8.9%) of patients in the present review.

Although ***protein malnutrition is much less common after RYGB than malabsorptive procedures*** such as OAGB (one anastomosis gastric bypass), BPD/DS (biliopancreatic diversion with duodenal switch), and D-RYGB (distal Roux-en-Y gastric bypass), it still concerns a substantial number of patients given the total number of RYGB performed worldwide.







Deficiency	Key clinical manifestations	Procedure-related frequency
Iron	microcytic anaemia	AGB + SG ++ RYGB, BPD, BPD/DS +++
Vitamin B12	megaloblastic anaemia neurologic abnormalities	SG, RYGB, BPD, BPD/DS ++
Vitamin D (and calcium)	bone demineralization increased risk of fractures	RYGB ++ BPD, BPD/DS +++
Vitamin A	ocular xerosis night blindness symptoms	BPD, BPD/DS +++
Vitamin E	anaemia ophthalmoplegia peripheral neuropathy	BPD, BPD/DS +++
Vitamin K	easy bleeding	BPD, BPD/DS +

AGB = Adjustable gastric banding; SG = sleeve gastrectomy; RYGB = gastric bypass; BPD = biliopancreatic diversion; BPD/DS = biliopancreatic diversion with duodenal switch.

Routine supplementation does not ensure an absolute prevention of deficiencies over time, mainly because of individual variations in micronutrient absorption, nutritional requirements and compliance. Therefore, periodic laboratory routine surveillance for nutritional deficiencies is recommended, and supplementation should be individualised accordingly in patients with demonstrated micronutrient insufficiencies or deficiencies [6]. A reasonable scheme for minimal periodic nutritional surveillance after bariatric procedures is proposed in table 6 [39]. Dual-energy X-ray absorptiometry (DEXA) should be performed before surgery and bi-annually thereafter to monitor bone mineral density in patients with gastric bypass, biliopancreatic diversion or duodenal switch [6]. However, the possibility to perform DEXA and its reliability before surgery may be risky in very obese patients.

Busetto L et al, *Practical Recommendations of the Obesity Management Task Force of the European Association for the Study of Obesity for the Post-Bariatric Surgery Medical Management*, *Obes Facts*, 10:597-632, 2017

CONCLUSION: All of the consulted guidelines, position papers and meta-analysis recommend lifelong VMS after SG. However, they diverge in type, dosage and route of basic VMS. Further research including long-term studies is needed to develop evidence-based, standardized micronutrient-supplement protocols for patients after SG.

Kob M, *The need for standardized evidence-based recommendations for vitamin-mineral supplementation after sleeve gastrectomy. A review of current guidelines*, 22nd World Congress of the International Federation for the Surgery of Obesity and Metabolic Disorders, 2017

Recommendations	Level of evidence	Grade of recommendation*
<u>Pregnancy is not recommended in the first 12–18 months following bariatric surgery.</u>	3	D
Antenatal care should be offered at a specialised centre with experience in pregnancy following bariatric surgery, via a specialist multidisciplinary antenatal care team.	4	D
Micronutrient supplementation should be provided to all women who are pregnant following bariatric surgery, in the form of a prenatal multivitamin preparation, B12 injections and oral calcium supplements.	3	D
Screening for gestational diabetes should be offered, however the conventional oral glucose tolerance test should be avoided. Serial capillary glucose monitoring should be used as an alternative.	4	D
Women presenting with abdominal pain in pregnancy should be offered urgent expert assessment, particularly for complications related to the primary bariatric surgical procedure.	3	D

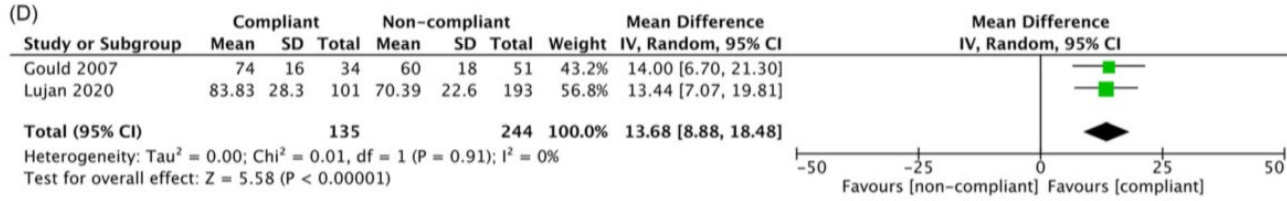
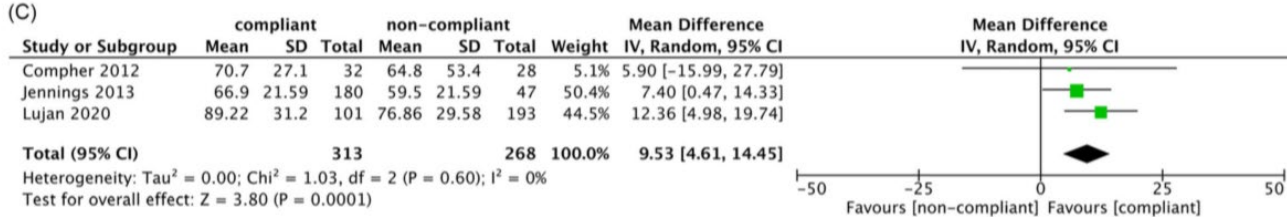
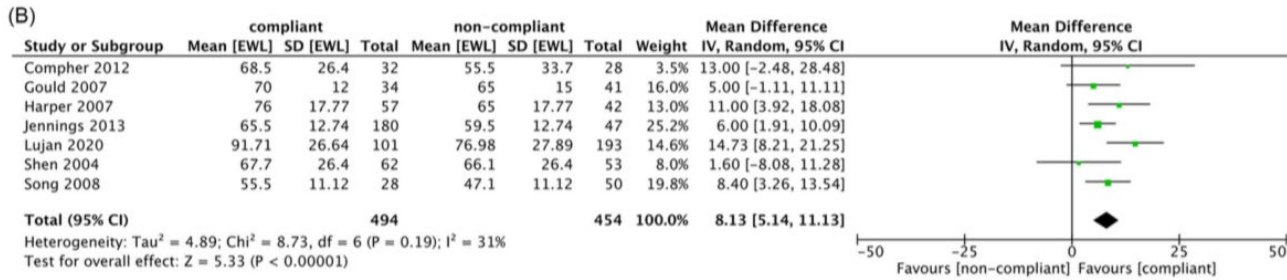
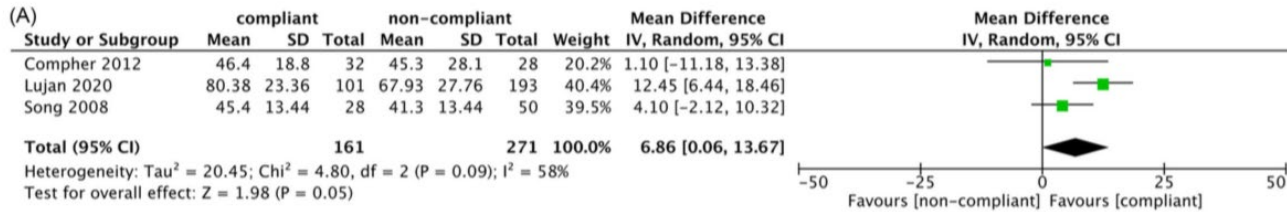
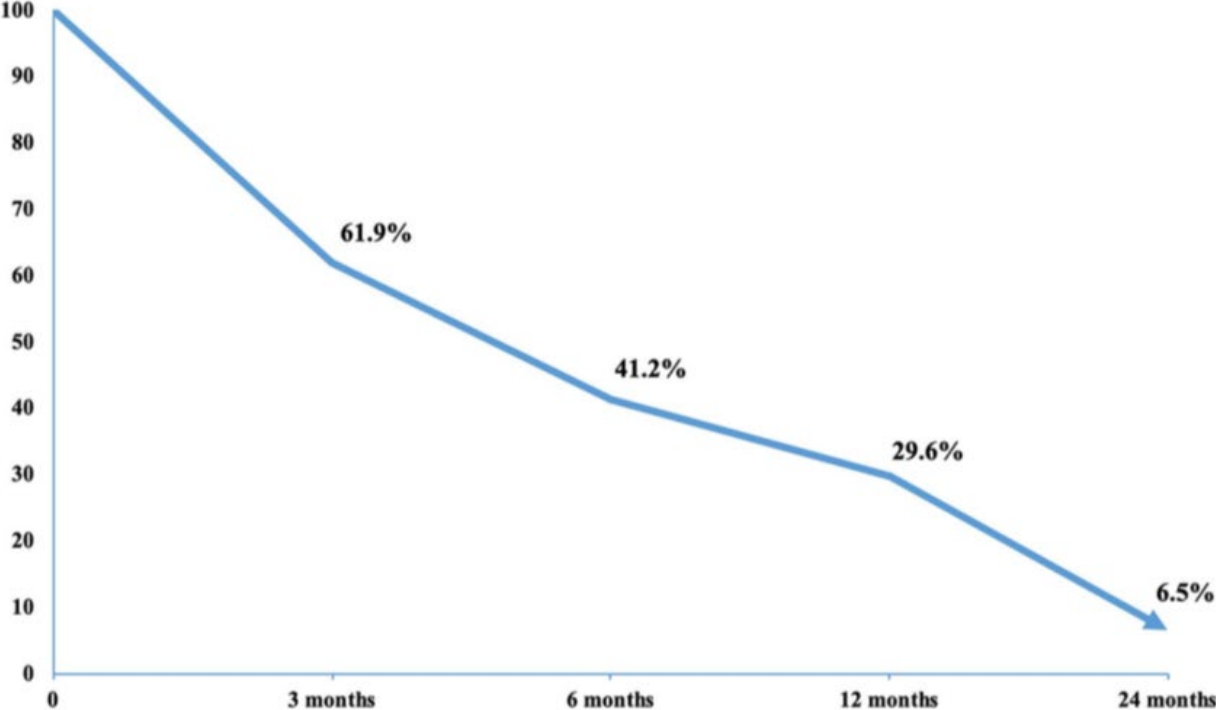
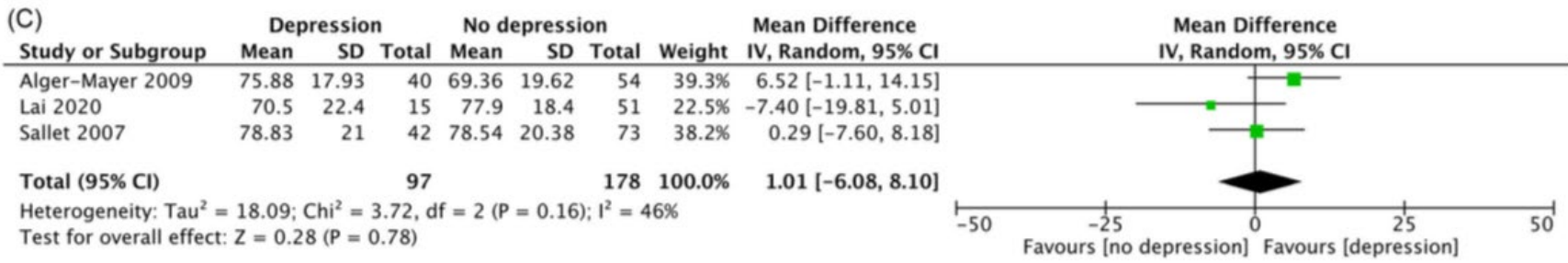
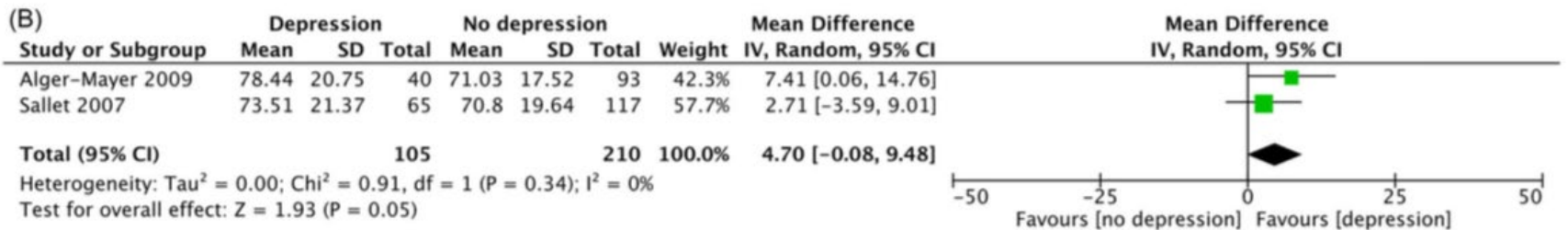
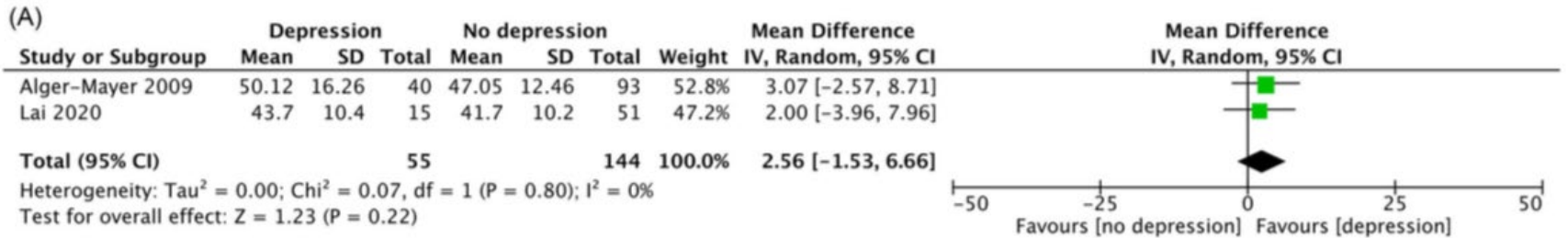
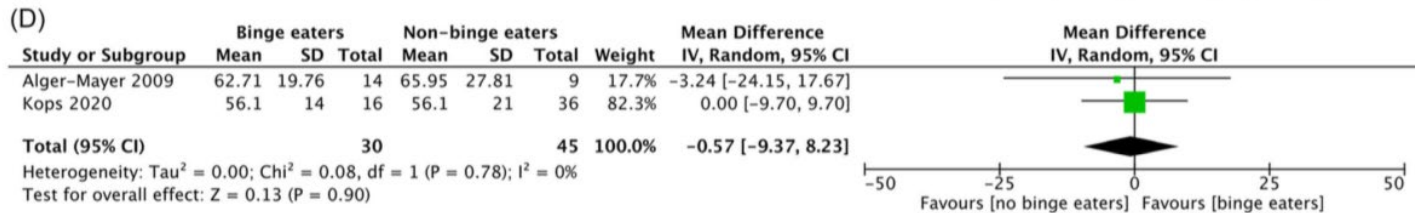
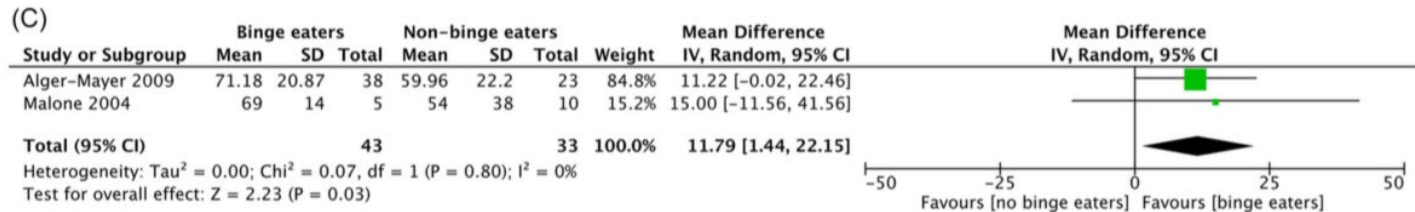
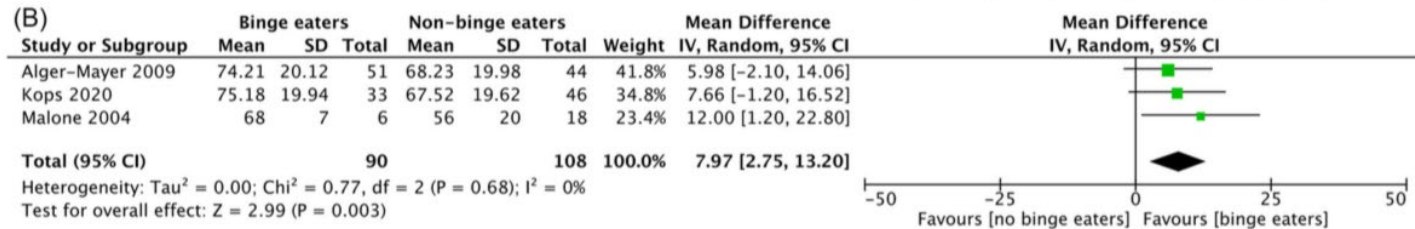
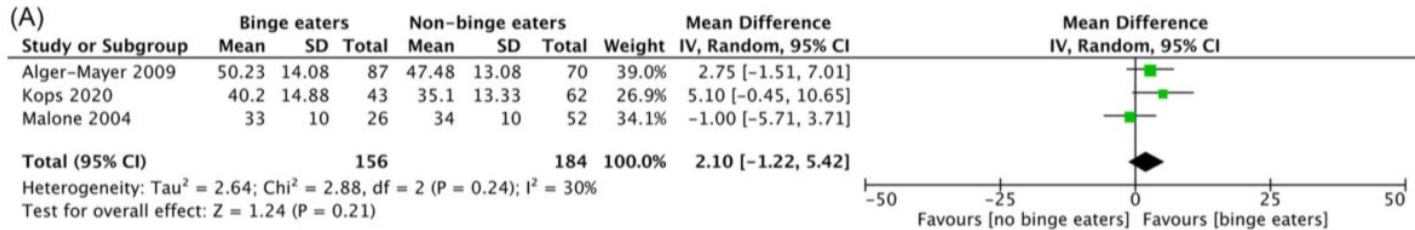
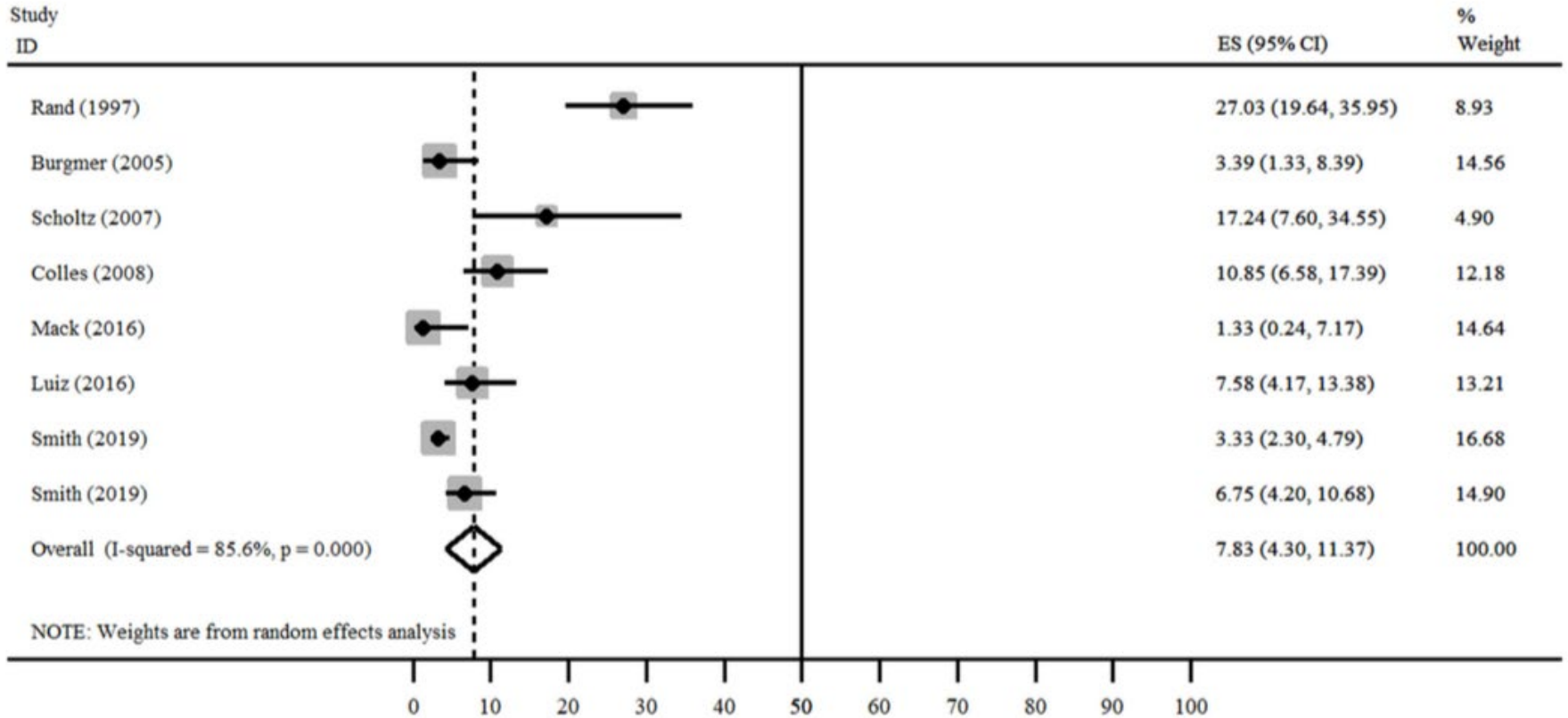


Fig. 1 Follow-up rates after bariatric surgery



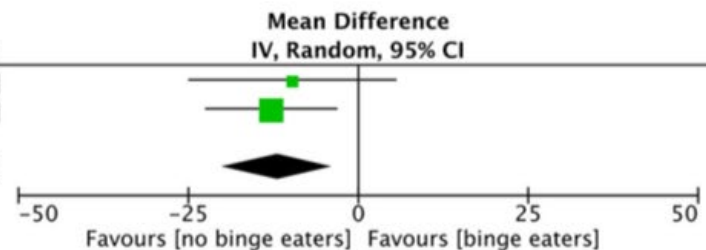






Study or Subgroup	Binge eaters			Non-binge eaters			Weight	Mean Difference IV, Random, 95% CI
	Mean	SD	Total	Mean	SD	Total		
Garcia-Diaz 2013	62	18.2	7	71.7	18.2	26	28.6%	-9.70 [-24.89, 5.49]
Luiz 2016	62.15	14.9	10	74.96	14.9	122	71.4%	-12.81 [-22.42, -3.20]
Total (95% CI)			17			148	100.0%	-11.92 [-20.04, -3.80]

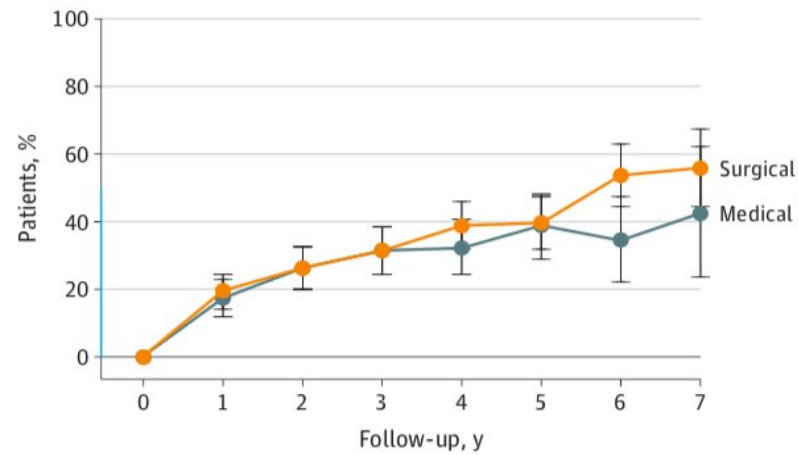
Heterogeneity: Tau² = 0.00; Chi² = 0.12, df = 1 (P = 0.73); I² = 0%
 Test for overall effect: Z = 2.88 (P = 0.004)



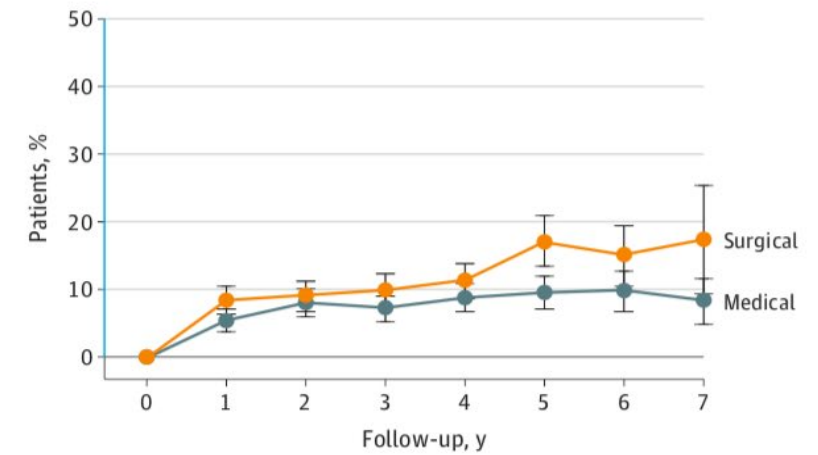
Studies identified in our review found **statistically significant reductions in anxiety and depressive symptoms following the first 24 months after surgery**. The largest reductions were seen in depressive symptoms within the first two years following surgery

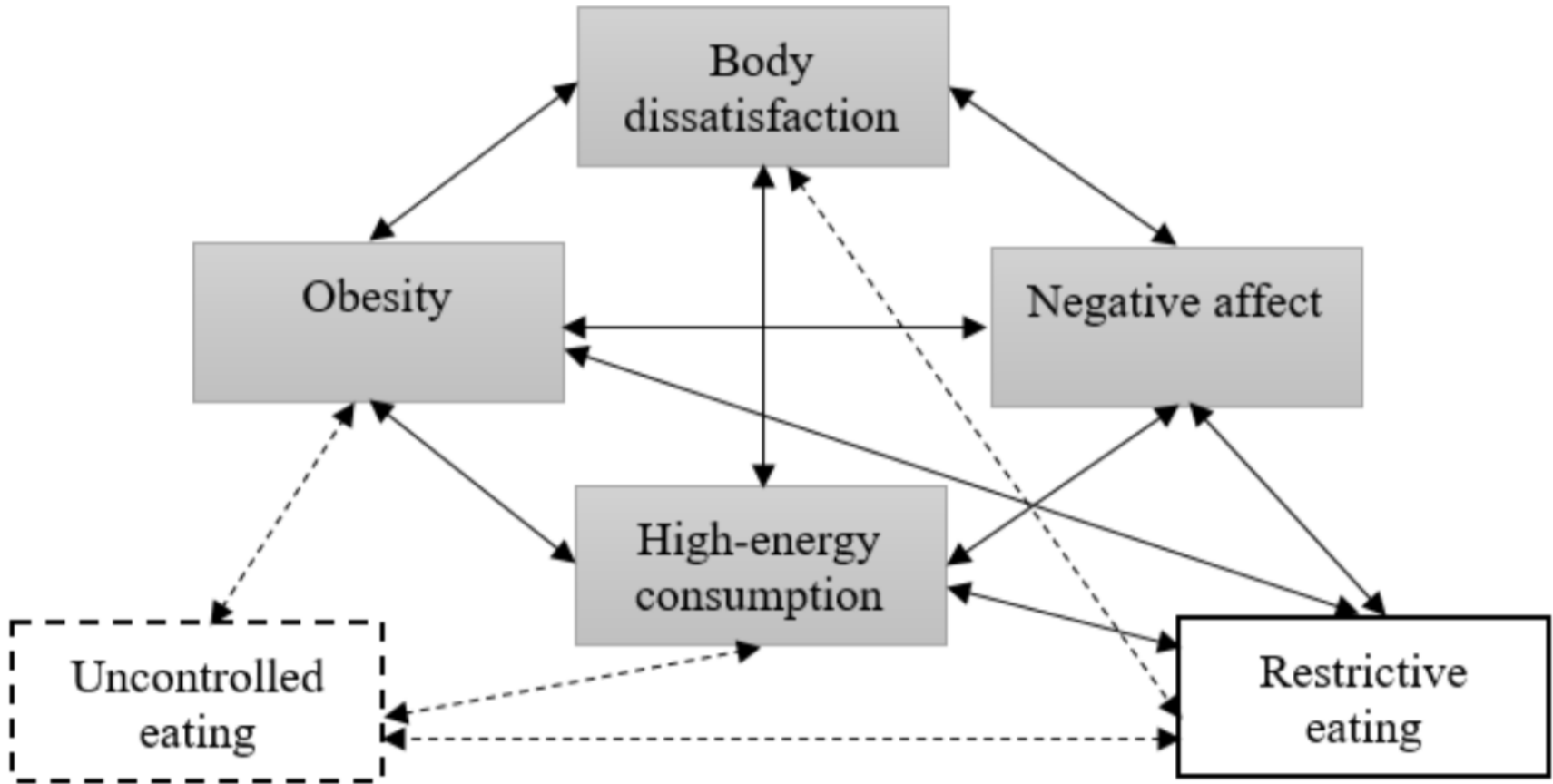
All studies saw **depression scores increase after the 2-3 year mark post-operatively**. We were unable to find the cause for this increase in depressive symptom severity

A Depression, remission



B Depression, new onset





The current evidence is strongest for the impact of psychosocial interventions on eating behaviours (eg, binge eating and emotional eating) **and psychological functioning** (quality of life, depression and anxiety)

The evidence for the impact of psychosocial interventions on weight loss, dietary behaviours (eg, dietary intake), and lifestyle behaviours (eg, physical activity) **is relatively weak and mixed**

Additional support from dietitians and physical therapists may be warranted for targeted dietary and physical activity interventions

*While there is some evidence to suggest that post-operative behavioural modification interventions in particular may improve weight loss, at present, **preoperative psychosocial interventions have not been found to improve post-operative weight loss outcomes**, nor have post-operative psychosocial interventions in patients already experiencing premature weight regain*

The optimal time to initiate psychosocial interventions is early in the post-operative period, before significant problematic eating behaviours and weight regain occur

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**Grazie per
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