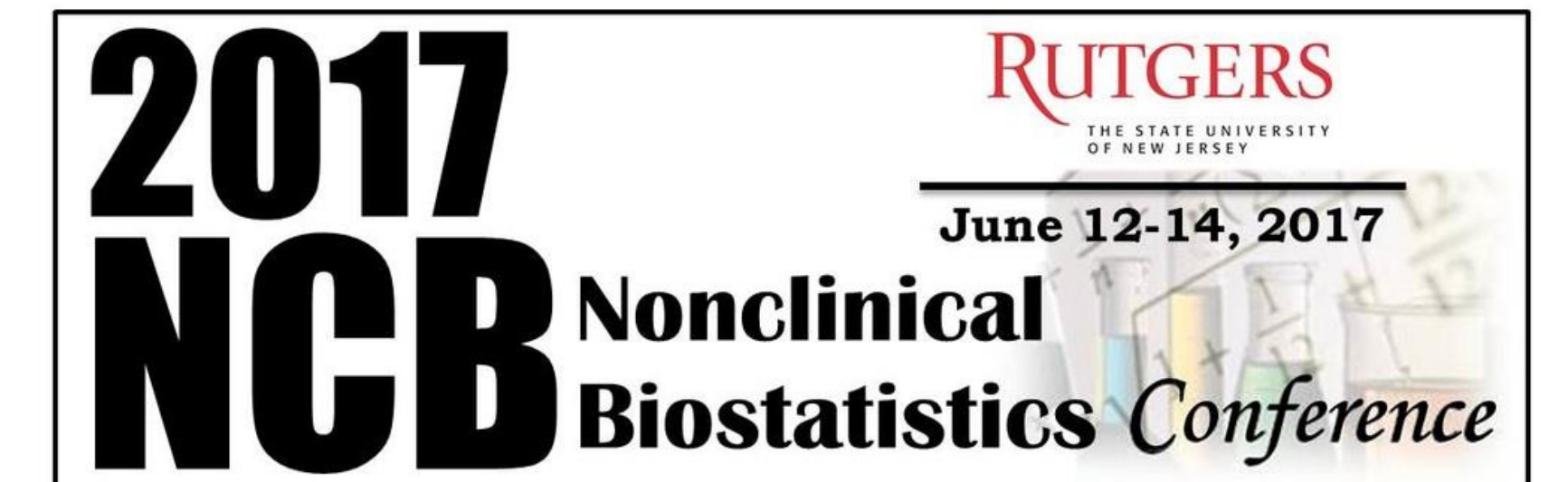


Impact of Bariatric Surgery on Obesity-Related Comorbidities: A Systematic Review and Meta-Analysis

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INTRODUCTION

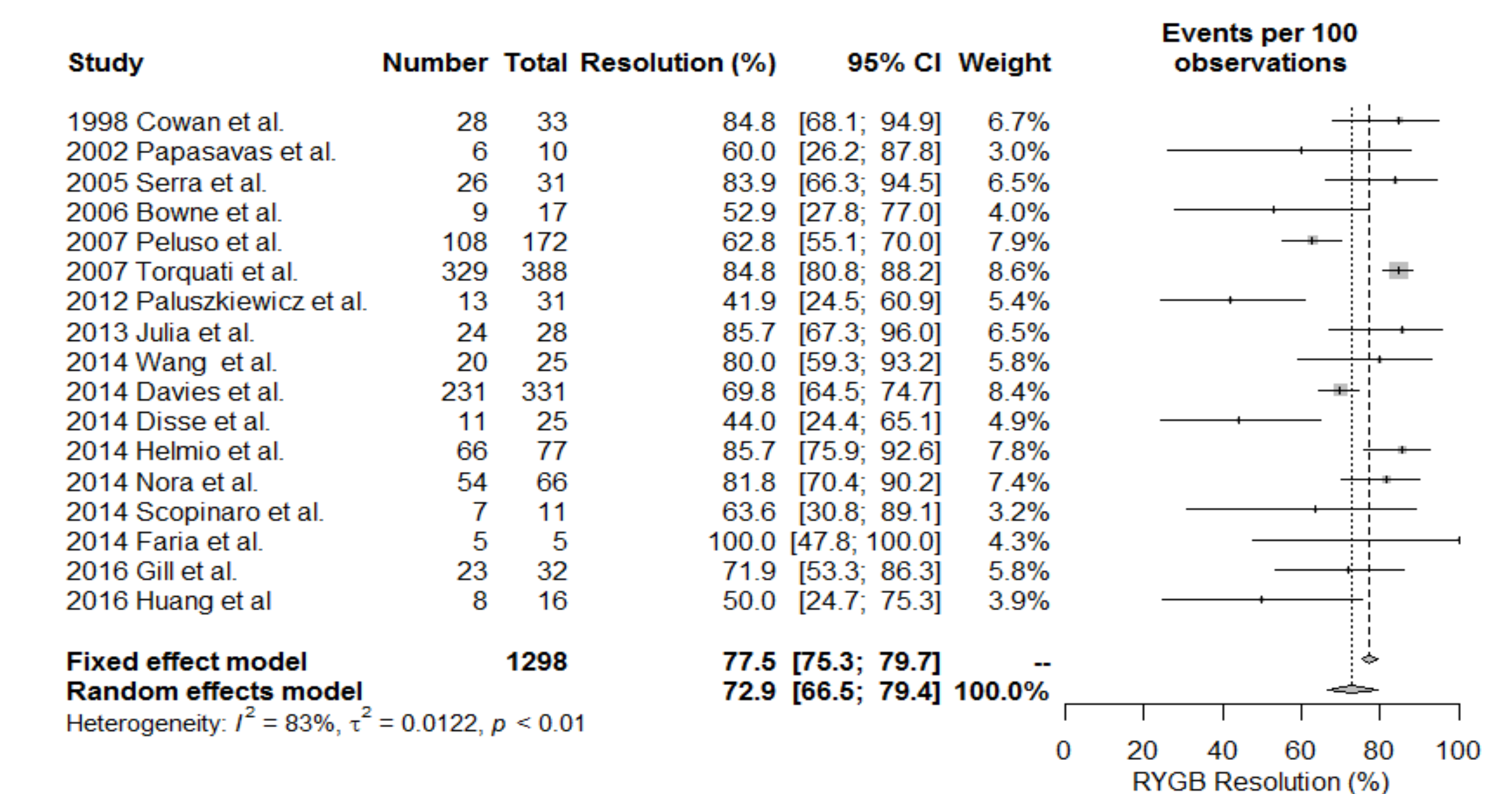
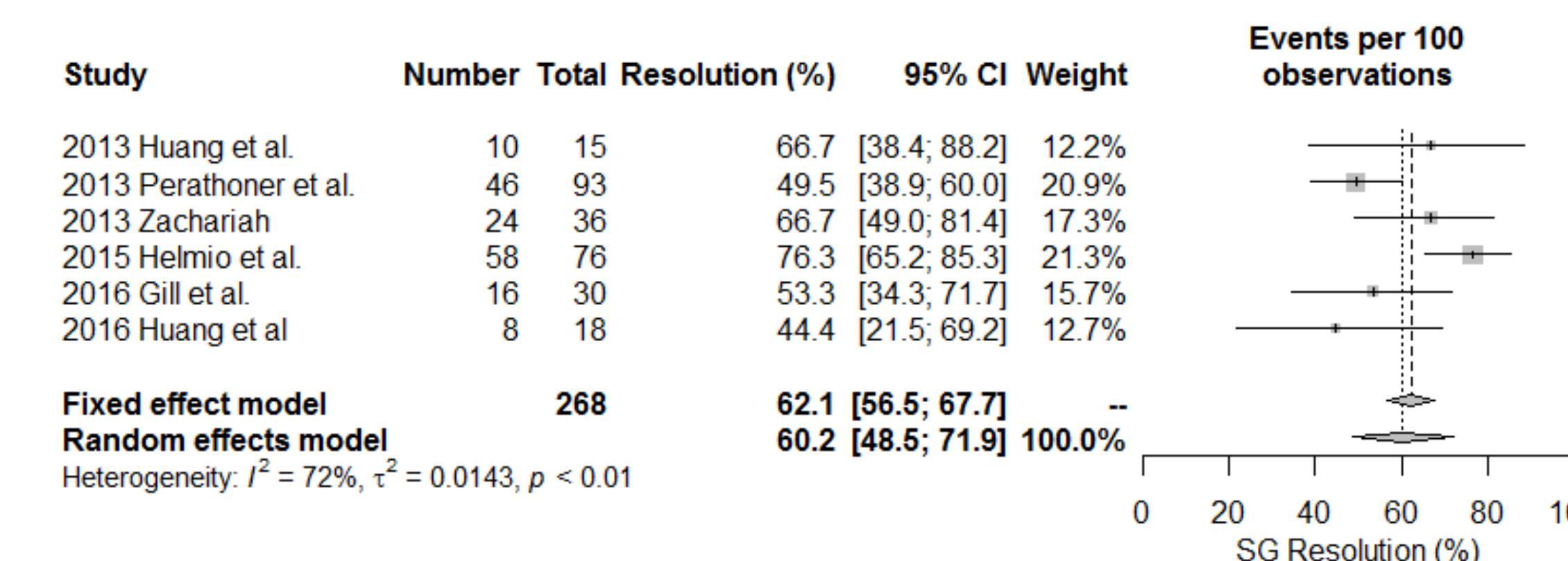
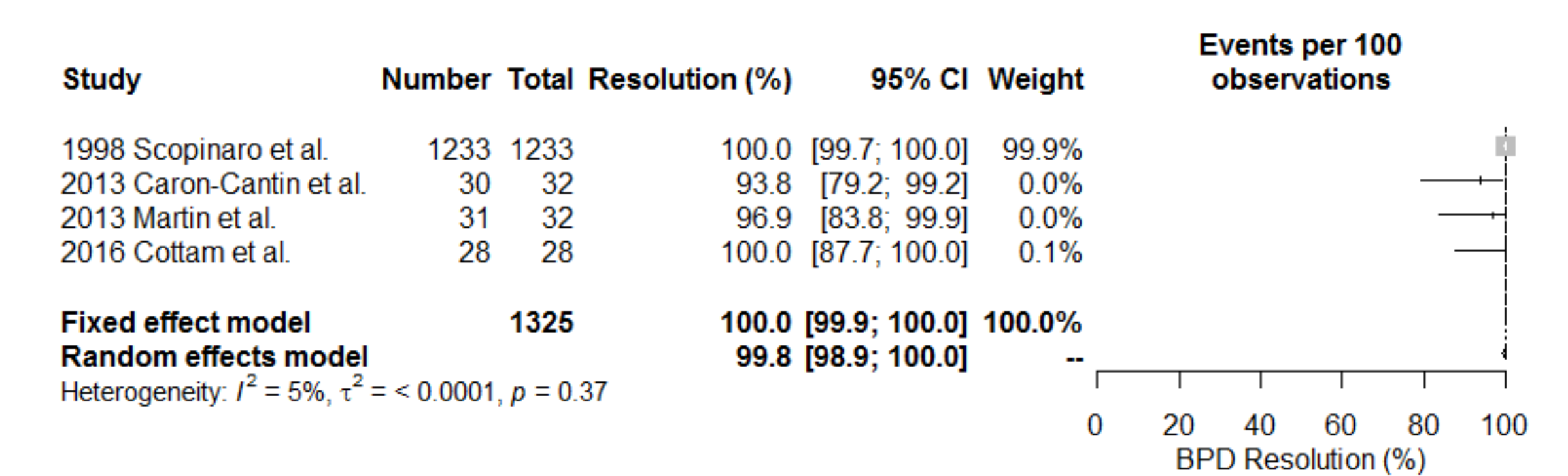
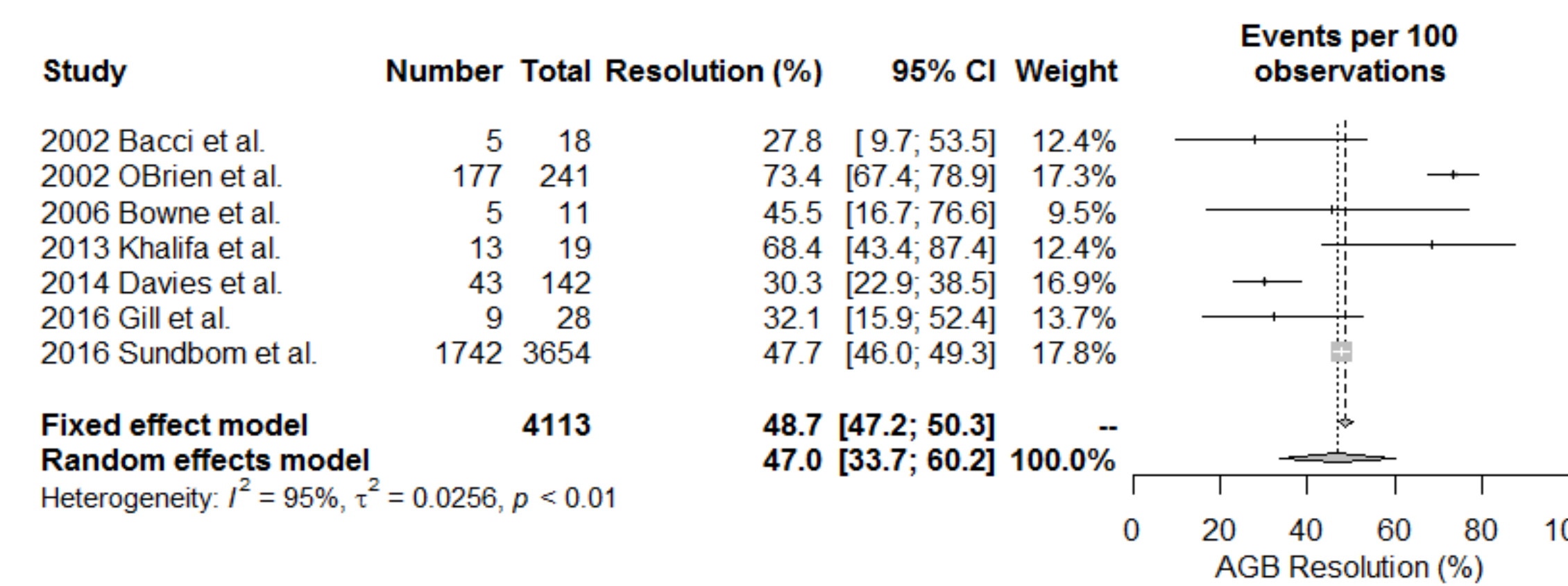
- Publications indicated that bariatric surgery not only led to significant weight loss but also resolved or improved multiple obesity-related comorbidities.
- A systematic review and meta-analysis of interventional studies was conducted to evaluate the impact of the most commonly performed bariatric surgery procedures.

METHODS

- We searched PubMed (1998-2016) for key words including bariatric surgery, type-II diabetes (DM), hypertension (HTN), hyperlipidemia (HLD), and sleep apnea (OSA).
- We manually reviewed the literature and consulted with experts to determine the final included articles. Data were independently extracted by two researchers.
- Studies were included if they: (1) were case series studies with surgical interventions; (2) reported clear obesity-related comorbidities before and after the bariatric surgery (up to 5-yr).
- Subgroup analyses were conducted to evaluate short-term vs. long-term effects in terms of comorbidities for different surgery types.
- Fixed-effects or random-effects models were chosen based on the degree of heterogeneity among subgroups.
- Sensitivity analyses were applied to examine the robustness of overall findings to potentially influential decisions.
- Publication bias was checked by funnel plots.

RESULTS

- 60 studies containing a total of over 40,000 patients were included in our analysis. Overall, bypass surgeries (BPD/DS and RYGB) were superior to others for patients with obesity-related comorbidities.
- When looking at the 2-year resolution rates, bypass procedures (BPD/DS and RYGB) had advantages over AGB in patients with hyperlipidemia (100%, 73% vs. 47%, $p < 0.001$); BPD/DS was superior to AGB in patients with hypertension (73% vs. 43%, $p < 0.05$); BPD/DS was superior to RYGB, SG, and AGB in diabetic patients (93% vs. 70%, 78%, 62%, $p < 0.001$).



Forest plot: HLD resolution rates for Biliopancreatic Diversion with Duodenal Switch (BPD/DS); Roux-en-y Gastric Bypass (RYGB); Adjustable Gastric Band (AGB); Sleeve gastrectomy (SG)

CONCLUSIONS

- The results illustrated an overall reduction of obesity-related comorbidities across different bariatric surgery procedures.
- In general, the long-term resolution rates were higher (but not significant) compared to the short-term rates of obesity-related comorbidities.
- Although there is a low level of evidence due to the nature of case series studies, this meta-analysis can help surgeons, physicians and health professionals for a provisional decision along with their clinical expertise in the absence of high-quality primary studies.

Distribution of Bariatric Surgeries

