

## Maternal and Neonatal Outcomes in Women Undergoing Bariatric Surgery: A Systematic Review and Meta-Analysis

**Authors :** Nicolas Galazis, Nikolina Docheva, Constantinos Simillis, Kypros Nicolaidis

**Abstract :** Background: Obese women are at increased risk for many pregnancy complications, and bariatric surgery (BS) before pregnancy has shown to improve some of these. Objectives: To review the current literature and quantitatively assess the obstetric and neonatal outcomes in pregnant women who have undergone BS. Search Strategy: MEDLINE, EMBASE and Cochrane databases were searched using relevant keywords to identify studies that reported on pregnancy outcomes after BS. Selection Criteria: Pregnancy outcome in firstly, women after BS compared to obese or BMI-matched women with no BS and secondly, women after BS compared to the same or different women before BS. Only observational studies were included. Data Collection and Analysis: Two investigators independently collected data on study characteristics and outcome measures of interest. These were analysed using the random effects model. Heterogeneity was assessed and sensitivity analysis was performed to account for publication bias. Main Results: The entry criteria were fulfilled by 17 non-randomised cohort or case-control studies, including seven with high methodological quality scores. In the BS group, compared to controls, there was a lower incidence of preeclampsia (OR, 0.45, 95% CI, 0.25-0.80;  $p=0.007$ ), GDM (OR, 0.47, 95% CI, 0.40-0.56;  $P<0.001$ ) and large neonates (OR 0.46, 95% CI 0.34-0.62;  $p<0.001$ ) and a higher incidence of small neonates (OR 1.93, 95% CI 1.52-2.44;  $p<0.001$ ), preterm birth (OR 1.31, 95% CI 1.08-1.58;  $p=0.006$ ), admission for neonatal intensive care (OR 1.33, 95% CI 1.02-1.72;  $p=0.03$ ) and maternal anaemia (OR 3.41, 95% CI 1.56-7.44,  $p=0.002$ ). Conclusions: BS as a whole improves some pregnancy outcomes. Laparoscopic adjustable gastric banding does not appear to increase the rate of small neonates that was seen with other BS procedures. Obese women of childbearing age undergoing BS need to be aware of these outcomes.

**Keywords :** bariatric surgery, pregnancy, preeclampsia, gestational diabetes, birth weight

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