

PUBLIC HEALTH NUTR | 孕前 BMI、妊娠期体重增加和产后体重滞留：观察研究的元分析

本文关键字：妊娠期体重增加、孕前 BMI、产后体重滞留、Meta 分析

影响因子：2.326

建议阅读时间：1 分钟

目的

确定妊娠期体重增加（GWG）或孕前 BMI 与产后体重滞留（PPWR）之间的相关性。

研究设计

Meta-分析

结果

在分析中包括了 17 篇满足合格标准的研究。比妊娠期体重增加正常的女性相比，GWG 不足及过多的女性，其平均 PPWR 显著更低 (-2.14kg) (95%CI -2.43, -1.85)，而 PPWR 则更高，(3.21kg) (95%CI, 2.79, 3.62kg)。其产后时间段被划分为 1-3 个月、3-6 个月、6-12 个月、12-36 个月以及 ≥ 15 岁时，GWG 和 PPWR 之间的相关性会随着时间增加而逐渐减弱，到 15 岁后相关性已不再显著 (-1.42kg; 95%CI -3.08, 0.24kg)。然而，GWG 过多的女性，其 PPWR 表现出 U 形趋势；即在产后早期（第 1 年）出现下降，随后不断增加。定性研究的 Meta 分析表明，GWG 过多与更高的 PPWR 风险之间有显著相关性 (OR=2.08; 95%CI 1.60, 2.70)。此外，孕前 BMI 对 PPWR 的 Meta 分析表明，随着 BMI 组的增加，平均 PPWR 会出现降低。

结论

这些研究结果表明是 GWG 而非孕前 BMI 决定了短期或长期 PPWR。

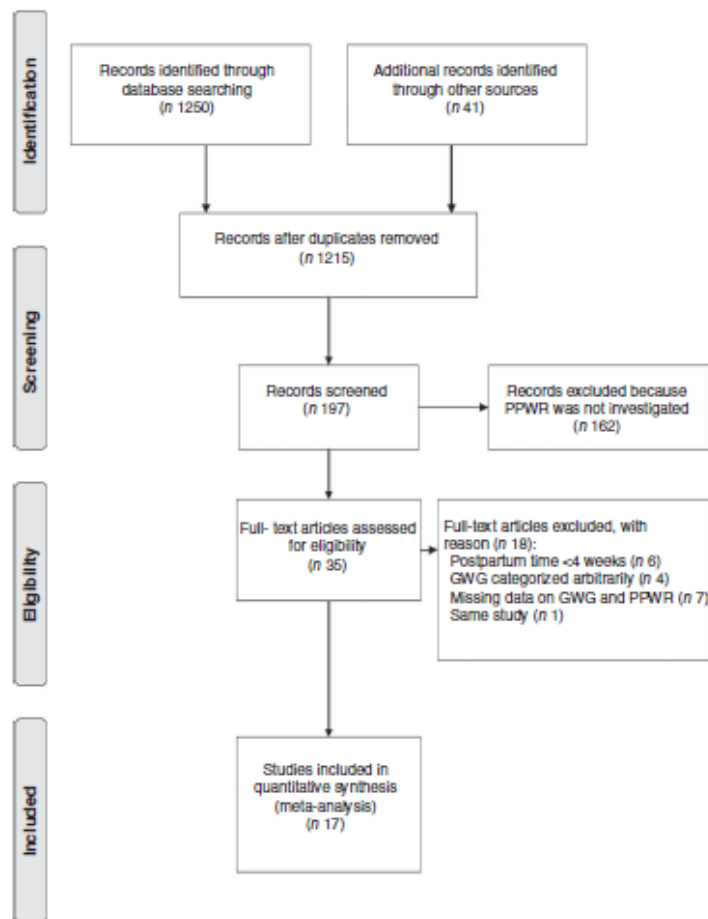


Fig. 1 Flowchart illustrating the selection process for articles included in the present meta-analysis (PPWR, postpartum weight retention; GWG, gestational weight gain)

Table 1 Main characteristics of the studies included in the present meta-analysis

Study ID	Reference	Country	Time postpartum (months)	Definition of GWG	Definition of PPWR	Indices*
Amorim (2007)	Amorim <i>et al.</i> ⁽¹¹⁾	Sweden	180	Body weight in late pregnancy – pre-pregnancy body weight	Body weight after pregnancy – pre-pregnancy body weight	1, 2
Althuisen (2011)	Althuisen <i>et al.</i> ⁽²⁶⁾	Netherlands	24	End-of-pregnancy weight – pre-pregnancy weight	Postpartum weight – pre-pregnancy weight	3
Begum (2012)	Begum <i>et al.</i> ⁽¹⁹⁾	Canada	3	Highest weight in pregnancy – pre-pregnancy body weight	Postpartum body weight – pre-pregnancy body weight	1, 2
Baker (2008)	Baker <i>et al.</i> ⁽¹⁷⁾	Denmark	6, 18	Self-reported	Current reported weight – pre-pregnancy weight	2
Huang (2010)	Huang <i>et al.</i> ⁽¹⁸⁾	Taiwan	6	Not defined	Not defined	2
Krause (2010)	Krause <i>et al.</i> ⁽¹²⁾	USA	3, 6	Not defined	Postpartum weight – pre-pregnancy body weight	1, 2
Kac (2004)	Kac <i>et al.</i> ⁽¹⁴⁾	Brazil	2, 6, 9	Self-reported: ‘How much weight did you gain during the last pregnancy?’	Body weight after pregnancy – pre-pregnancy body weight	1
Koh (2013)	Koh <i>et al.</i> ⁽²⁴⁾	Singapore	6, 12, 24	Final pregnancy weight – pre-pregnancy weight	Maternal weight – pre-pregnancy weight	3
Lowell (2010)	Lowell and Miller ⁽⁷⁾	Canada	5–9	Self-reported: ‘How much weight did you gain during your pregnancy?’	Self-reported body weight after pregnancy – pre-pregnancy body weight	1
Mamun (2010)	Mamun <i>et al.</i> ⁽⁹⁾	Australia	252	Maximum weight in pregnancy – pre-pregnancy weight	Postpartum weight gain	1
Maddah (2009)	Maddah and Nkooyah ⁽¹⁵⁾	Iran	24, 36, 48	Body weight at last antenatal visit – body weight at first antenatal visit	Body weight after pregnancy – pre-pregnancy body weight	1, 2, 3
Ostbye (2010)	Ostbye <i>et al.</i> ⁽¹³⁾	USA	33.6	Not defined	Not defined	1, 2
Oxen (2009)	Oxen <i>et al.</i> ⁽²⁵⁾	USA	12	Last clinically measured weight recorded prior to delivery – pre-pregnancy weight	Weight at 12 months following delivery – pre-pregnancy weight	3
Rode (2011)	Rode <i>et al.</i> ⁽⁸⁾	Denmark	24	Body weight at 37 weeks’ gestation – pre-pregnancy weight	Body weight after pregnancy – pre-pregnancy body weight	1, 2, 3
Rothberg (2011)	Gould Rothberg <i>et al.</i> ⁽¹⁶⁾	USA	1.5, 6, 12	Not defined	Not defined	2
Scholl (1995)	Scholl <i>et al.</i> ⁽²³⁾	USA	1.5, 6	Not defined	Measured postpartum weight – pre-pregnancy weight	1
Walker (2004)	Walker <i>et al.</i> ⁽¹⁰⁾	USA	1.5	End pregnancy body weight – pre-pregnancy body weight	Postpartum body weight – pre-pregnancy body weight	1, 2

GWG, gestational weight gain; PPWR, postpartum weight retention.

*1, PPWR of different GWG categories; 2, PPWR of different pre-pregnancy BMI groups; 3, OR of PPWR ≥ 5 kg between GWG above recommendation and GWG within recommendation.

Table 2 Quality assessment of studies included in the present meta-analysis using the Newcastle–Ottawa Scale

Study ID	Selection	Comparability	Outcome/exposure
Amorim (2007)	***	**	***
Althuisen (2011)	***	**	**
Begum (2012)	***	**	**
Baker (2008)	***	**	**
Huang (2010)	***	**	*
Krause (2010)	***	**	*
Kac (2004)	***	**	*
Koh (2013)	***	**	**
Lowell (2010)	***	**	*
Mamun (2010)	***	**	**
Maddah (2009)	***	**	**
Østbye (2010)	***	**	**
Oken (2009)	***	**	**
Rode (2011)	***	**	***
Rothberg (2011)	***	**	**
Scholl (1995)	***	**	*
Walker (2004)	***	**	**

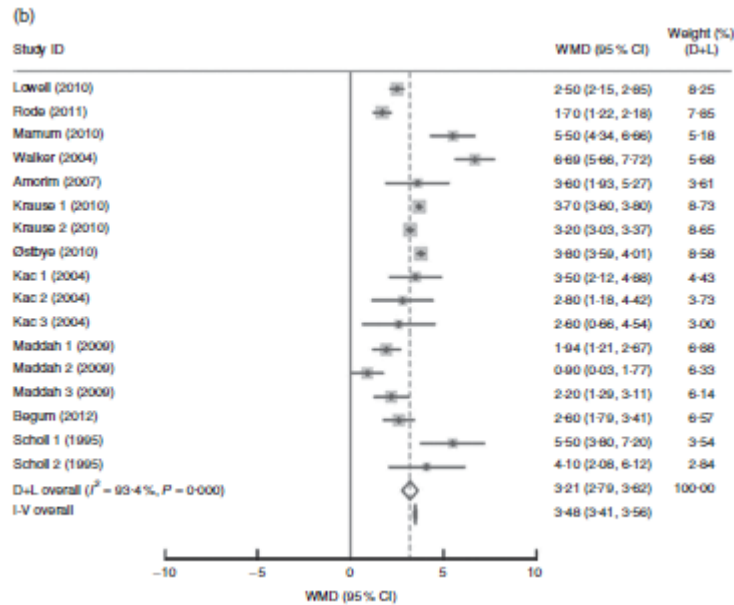
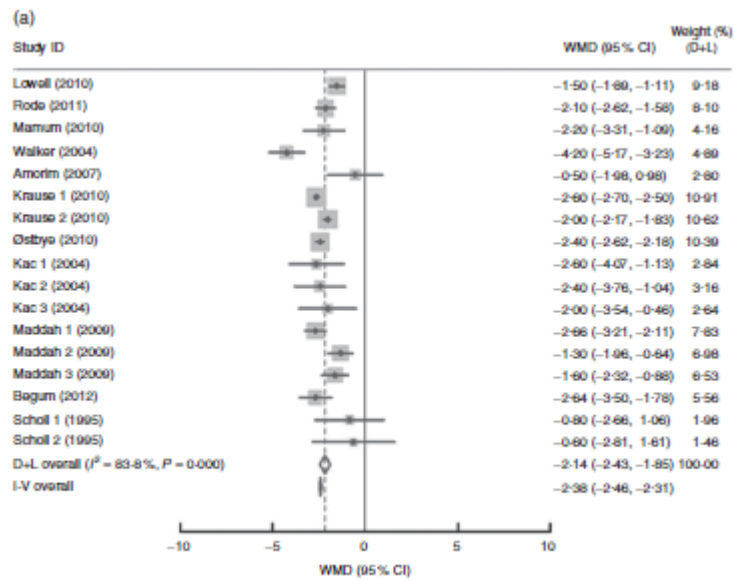


Table 3 Subgroup analyses of postpartum weight retention stratified by postpartum duration and US Institute of Medicine (IOM) guidelines

Variable	<i>n</i>	Below v. within			Above v. within		
		Net change	95 % CI	<i>I</i> ² (%)	Net change	95 % CI	<i>I</i> ² (%)
Postpartum duration							
1–3 months	5	-2.75	-3.48, -2.03	71.5	4.33	3.12, 5.53	90.8
3–6 months	3	-2.00	-2.17, -1.83	0.0	3.20	3.03, 3.37	0.0
6–12 months	4	-1.95	-2.21, -1.68	74.4	2.11	1.61, 2.61	60.4
12–36 months	3	-1.82	-2.59, -1.05	84.5	2.33	0.44, 4.23	96.0
≥15 years	2	-1.42	-3.08, 0.24	69.1	4.65	2.8, 6.5	70.1
IOM guidelines							
IOM 1990	12	-2.02	-2.65, -1.38	75.3	3.55	2.34, 4.76	90.6
IOM 2009	5	-2.33	-2.65, -2.01	88.9	3.08	2.61, 3.56	95.7

*Number of comparisons.

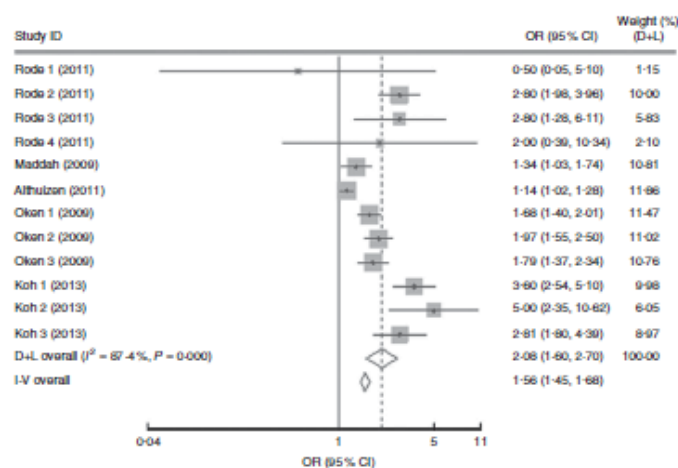


Fig. 3 Forest plot of the studies on the risk of postpartum weight retention of ≥5 kg for the women with excessive gestational weight gain (GWG) v. the women with adequate GWG. The study-specific OR and 95 % CI are represented by the grey square and horizontal line, respectively; the size of the data marker (grey square) is proportional to the weight of the study in the meta-analysis (note: weights are from random-effects analysis). The centre of the open diamond presents the pooled OR and its width represents the pooled 95 % CI

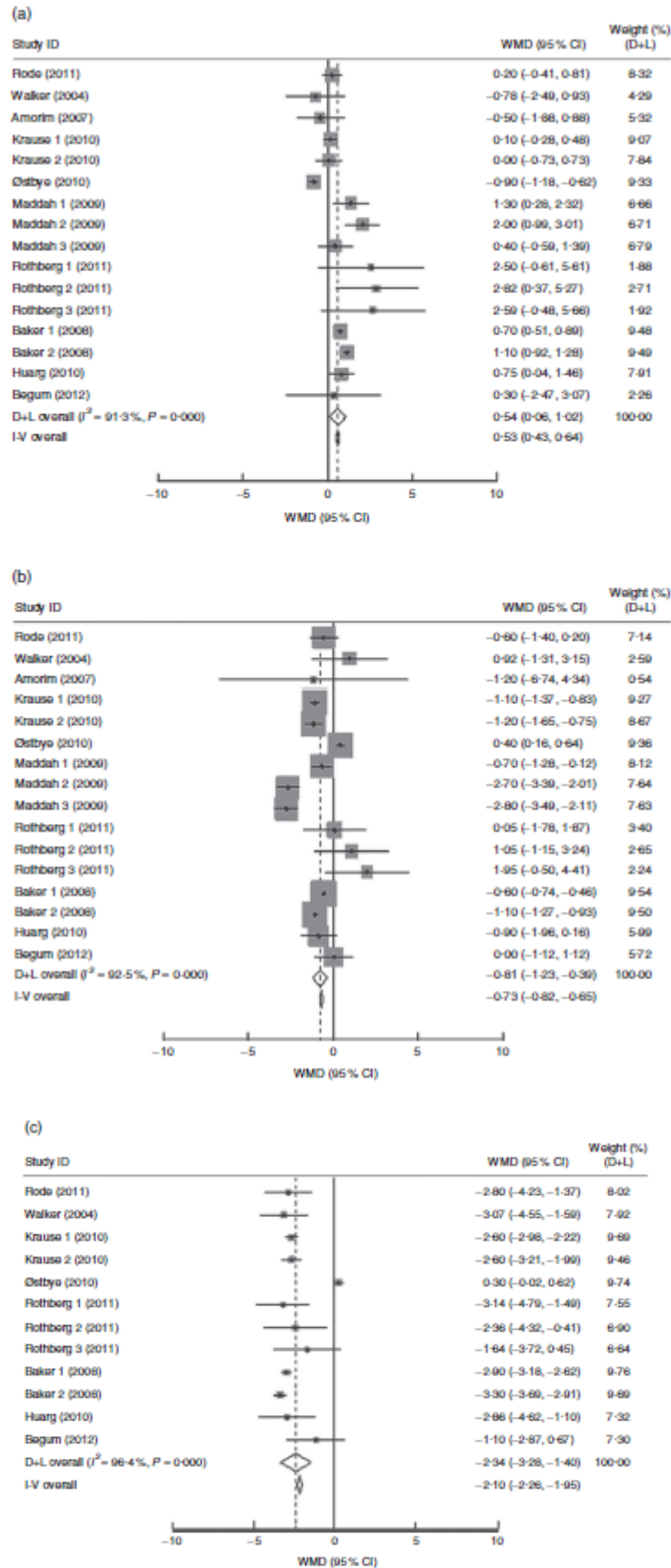


Fig. 4 (Continued from previous page) Pooled estimates for the weighted mean differences (WMD, kg) of postpartum weight retention between women whose pre-pregnancy BMI was less than 18.5 kg/m² (a), 25.0–29.9 kg/m² (b) and ≥30.0 kg/m² (c) and women whose pre-pregnancy BMI was 18.5–24.9 kg/m². The study-specific WMD and 95% CI are represented by the grey square and horizontal line, respectively; the size of the data marker (grey square) is proportional to the weight of the study in the meta-analysis. The centre of the open diamond presents the pooled WMD and its width represents the pooled 95% CI

参考文献: Rong K,et al. Public Health Nutr.2015 Aug;18(12):2172-82.

文献链接: <https://www.ncbi.nlm.nih.gov/pubmed/25411780>