

Monitoring gestational weight gain and prepregnancy BMI using the 2009 IOM guidelines in the global population: a systematic review and meta-analysis

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Abstract

Background: Previous studies have reported a high prevalence of excessive gestational weight gain (GWG) in women with prepregnancy BMI classified as overweight and obese. However, the joint evidence regarding GWG and prepregnancy BMI in the worldwide population has not been synthesized. Thus, this systematic review and meta-analysis aimed to estimate global and regional mean GWG and the prevalence of GWG above, within and below 2009 Institute of Medicine (IOM) guidelines. Second, we aimed to estimate global and regional prepregnancy BMI and the prevalence of BMI categories according to World Health Organization (WHO) classification. **Methods:** We searched Medline, Embase, the Cochrane Library and Web of Science to identify observational studies until 9 May 2018. We included studies published from 2009 that used 2009 IOM guidelines, reporting data from women in general population with singleton pregnancies. The 2009 IOM categories for GWG and the WHO categories for prepregnancy BMI were used. DerSimonian and Laird random effects methods were used to estimate the pooled and their respective 95% confidence intervals (95% CIs) of the mean and by category rates of GWG and prepregnancy BMI, calculated by global and regions. **Results:** Sixty-three published studies from 29 countries with a total sample size of 1,416,915 women were included. The global prevalence of GWG above and below the 2009 IOM guidelines, was 27.8% (95% CI; 26.5, 29.1) and 39.4% (95% CI; 37.1, 41.7), respectively. Furthermore, meta-regression analyses showed that the mean GWG and the prevalence of GWG above guidelines have increased. The global prevalence of overweight and obesity, was 23.0% (95% CI; 22.3, 23.7) and 16.3% (95% CI; 15.4, 17.4), respectively. The highest mean GWG and prepregnancy BMI were in North America and the lowest were in Asia. **Conclusions:** Considering the high prevalence of GWG above the 2009 IOM guidelines and women with overweight/obesity and their continuously increasing trend in most regions, clinicians should recommend lifestyle interventions to improve women's weight during reproductive age. Due to regional variability, these interventions should be adapted to each cultural context. **Trial registration:** Prospectively registered with PROSPERO (CRD42018093562).

Author keywords

Gestational weight gain

Institute of Medicine gestational weight gain guidelines

Prepregnancy body mass index

Trend