

Letter to the Editor:

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**Stress during pregnancy, gestational weight gain, and body mass index.**

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We read with interest the article by Kominiarek et al. [1] designed to evaluate the association between prenatal stress by Life Experiences Survey (LES, Scarson et al., 1987) [2] and gestational weight gain (GWG), defined according to IOM, 2009 [3]. Stress appears to be associated with GWG and stress reduction interventions during pregnancy may be a novel way to promote appropriate GWG, with the potential to influence the obesity epidemic across generations.

These findings are clinically relevant because highlight a consistent group of pregnant women that may benefit from stress reduction interventions, with the potential to promote appropriate GWG and, meeting their GWG goals, to reduce gestational obesity development. However, we feel it is also necessary to bring to attention some considerations emerging from the method used for this original analysis.

Firstly, GWG is variable from woman to woman and frequently yields a discrepancy between pre- pregnancy and gestational BM. However, the data from Kominiarek et al. [1] study reported only pre-pregnancy obesity rates among inadequate, adequate, and excessive GWG and the observed results may not apply to a wider number of women moving from a body mass index (BMI) range category to another or with gestational obesity.

Secondly, stressful life changes may have a different impact among underweight, normal weight, overweight and obese women, and yet among obese class I to III women. Most importantly, if psychological factors do affect GWG disorders, then targeting these modifiable factors with directed interventions may prove to have a greater impact on both abnormal GWG and gestational obesity than the current interventions that primarily focus on health behaviors such as diet and exercise. Nevertheless, understanding these associations is complex, because pre-pregnancy BMI and its shift across gestation are closely linked to lifestyle factors and genetic traits that are also correlated with maternal physiological and social characteristics.

Finally, although these characteristics are important, psychosocial factors such as stress and eating disorders have been shown to be associated with a variety of adverse behaviors, including those related to body weight disorders, and should therefore be further studied in the context of GWG and obesity across gestation [3,4].

In conclusion, the problem of pre-pregnancy and gestational obesity is now recognized as a major public health concern. The study by Kominiarek et al. [1] has the relevant merit to elicit the scientific interest on a novel way, based on stress reduction interventions, to promote appropriate GWG and better perinatal outcomes. Interventions shown to reduce rates of excessive GWG have the potential to influence the obesity epidemic across generations [5]. Nevertheless, we still need to evaluate the contextual relevance of GWG determinants in different BMI pre-pregnancy women categories to understand the direction and magnitude of the stress effect on gestational obesity, in low income and developed countries.

## References

- 1) Kominiarek MA, Grobman W, Adam E, Buss C, Culhane J, Entinger S et al. Stress during pregnancy and gestational weight gain. *J Perinatol* 2018 Jan 29. doi: 10.1038/s41372-018-0051-9.
- 2) Sarason IG, Johnson JH, Siegel JM. Assessing the impact of life changes: development of the life experiences survey. *J Consult Clin Psychol* 1978; 46:932–46.
- 3) Institute of Medicine. Weight gain during pregnancy: reexamining the guidelines National Academies Press 2009; Washington, DC.
- 4) Webb JB, Siega-Riz AM, Dole N. Psychosocial determinants of adequacy of gestational weight gain. *Obes (Silver Spring)*. 2009;17:300–309.

5) Lindsay KL, Buss C, Wadhwa PD, Entringer S. The interplay between maternal nutrition and stress during pregnancy: issues and considerations. *Ann Nutr Metab* 2017;70:191–200.