# Clinical evidence of the relationship between preconception weight reduction and fertility outcomes

We sincerely congratulate Caldwell et al. (1) on their recent publication in *Fertility and Sterility*. The investigators used meta-analysis to specifically investigate the association between preconception weight reduction and fertility outcomes in obese or overweight women. The study throws light on the fact that preconception weight loss interventions have valuable significance in improving pregnancy rates compared with women in the control groups. However, the study methods and the interpretation of the results raise concerns.

First, according to the subgroup analysis, on the one hand, the investigators suggested that weight loss interventions lasting $\leq$12 weeks were associated with higher rates of pregnancy compared with the control group. On the other hand, there was a significant improvement in live birth rates with preconception weight reduction interventions lasting $>$12 weeks. These two pooled results may cause confusion because they were achieved at two opposite intervention times. Therefore, we humbly recommend that the investigators should explain how we can choose the appropriate intervention times to improve fertility outcomes in clinical practice.

Second, most of the results were moderately heterogeneous; however, the investigators failed to perform sensitivity analyses to verify the robustness of the pooled results (2). Moreover, publication bias is another important factor when interpreting clinical evidence. Hence, to enhance the credibility of the evidence, we humbly suggest the application of Egger test to investigate underlying publication bias across the studies.

Third, the investigators assessed the risk of bias using the Cochrane Collaboration Handbook tool and showed the result in Supplemental Figure 2 as stated in the section "3.3 Risk of bias assessment results." However, Figure 2 is a forest plot showing the risk ratios for pregnancy, not the results of risk of bias. Therefore, we would like to propose that the risk of bias assessment results should be demonstrated. Meanwhile, we also humbly encourage the investigators to adopt RoB 2 to assess the risk of bias because RoB 2 includes optional judgments of the direction of the bias for each domain and in whole (3).

In summary, this study presents a new perspective in the association between preconception weight reduction and fertility outcomes in women with obesity or overweight. However, some more nuanced refinements are necessary to enable readers to convincingly determine the value of the association between preconception weight loss interventions and fertility outcomes.

## CRediT Authorship Contribution Statement

**Guangyao Lin:** Writing – review & editing, Writing – original draft, Methodology, Data curation, Conceptualization. **Stella Lim Jin Yie:** Writing – review & editing, Validation, Methodology, Data curation, Conceptualization. **Lianwei Xu:** Writing – review & editing, Supervision, Conceptualization.

## Declaration of Interests

G.L. has nothing to disclose. S.L.J.Y. has nothing to disclose. L.X. has nothing to disclose.

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