

(EP08.10). Effects of Early Life Growth Trajectories on Childhood Overweight and Obesity

Qingqing Wu

Objective

This study investigated whether fetal growth trajectory (FGT) can predict adverse childhood growth outcomes. The correlation between maternal metabolic factors and FGT was evaluated.

Methods

1525 women with singleton pregnancies were included in this study. Fetal growth was assessed at least three times at 20 to 24 weeks of gestation, 28 to 32 weeks, and ≥ 36 weeks. Children's growth was monitored from birth to 2 years of age. A population-based trajectory model was used to analyze the changes in FGT with gestational age and the association between FGT and childhood overweight and obesity at 2 years of age. Multivariate logistic regression was used to analyze the risk factors affecting fetal growth trajectory. Odds ratio (OR) and 95% confidence interval (CI) were calculated.

Results

Among the 1525 participants, trajectory analysis identified three FGTs based on fetal estimated fetal weight: an "accelerated growth trajectory" (n = 278, 18.2%), "median growth trajectory" (n = 708, 46.4%), and a "faltering growth trajectory" (n = 539, 35.4%)(Figure 1). The fetus in accelerating growth trajectory had a twofold increased risk of overweight and obesity at 2 years of age (RR =2.13, 95 % CI = 1.35, 7.25). Advanced age (OR 1.07, 95%CI 1.0-1.11), high BMI (OR 1.10, 95%CI 1.05-1.14), excessive gestational weight gain (OR 1.05, 95%CI 1.02-1.08)), diabetes during pregnancy (OR 1.74, 95%CI 1.14-2.65)) were risk factors for accelerating growth trajectory(Figure 2).

Conclusion

These findings suggested that accelerating growth trajectory was associated with overweight and obesity in early childhood, and differences in maternal metabolic factors may alter fetal growth trajectory. This study contributes to the early identification of infants at risk of overweight and obesity.

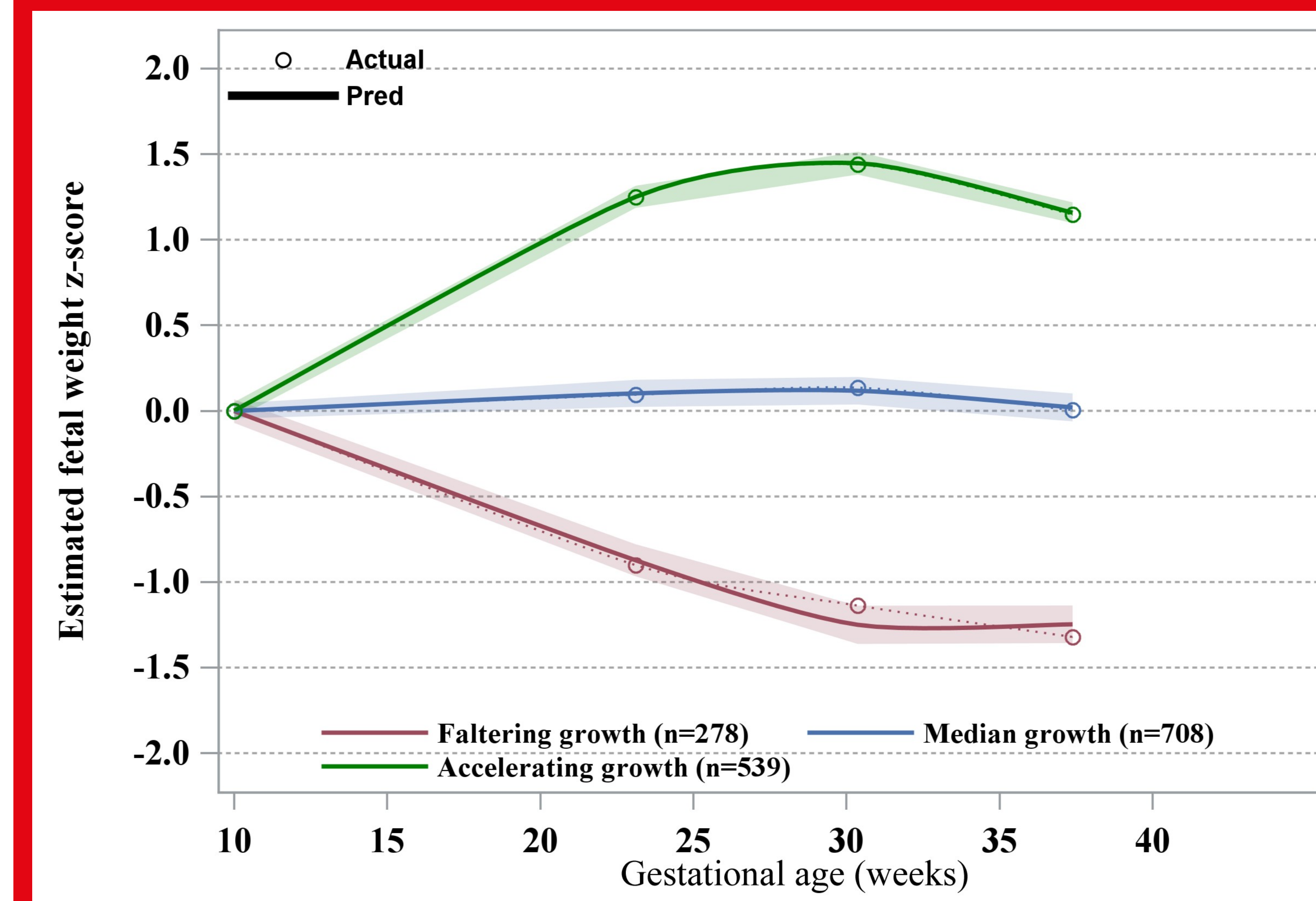


Figure 1. Fetal growth trajectories.

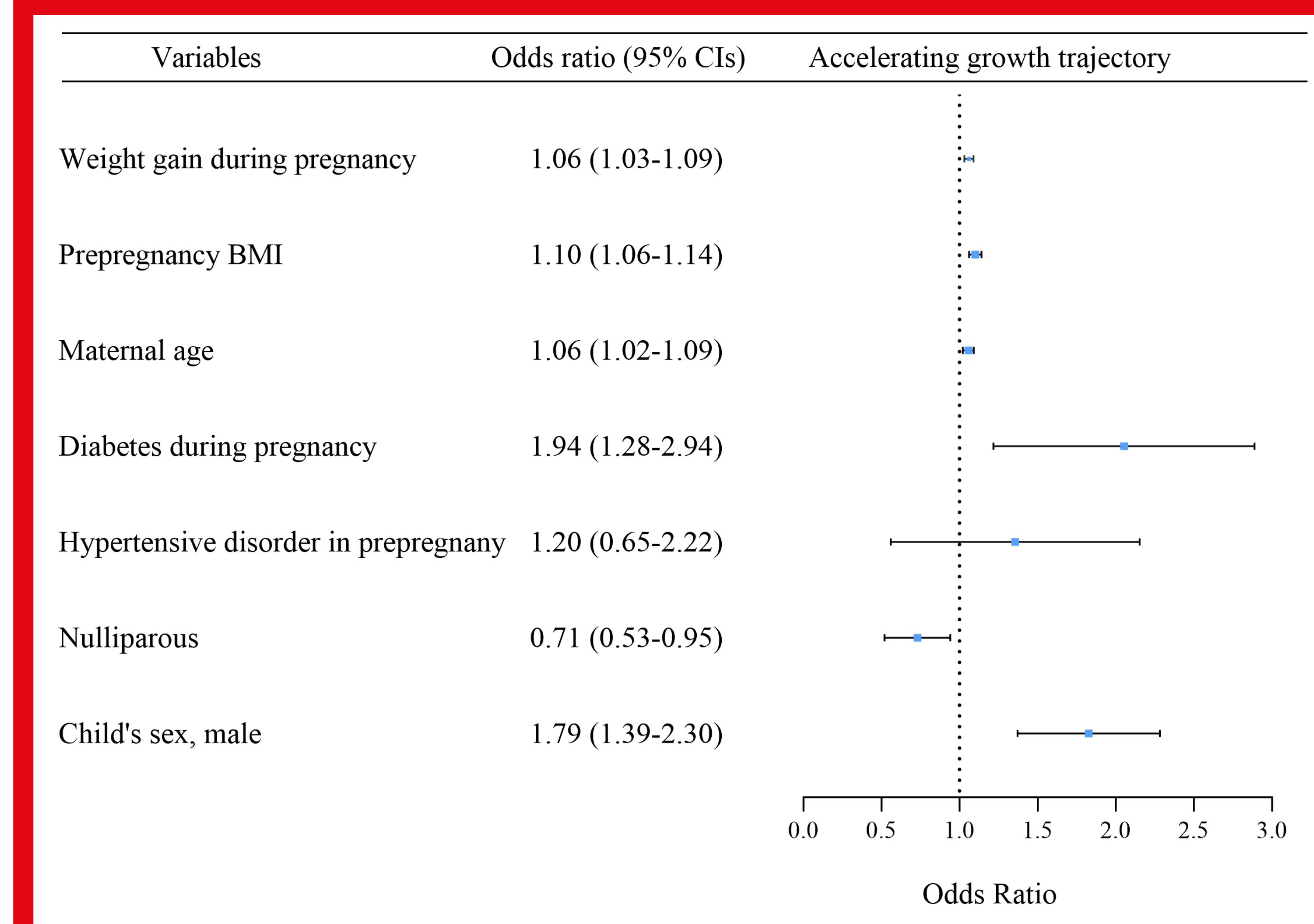


Figure 2. Associations between variables and accelerating growth trajectory