

EP05.18 - Womb wise: A sonographic study of maternal-fetal interaction

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Objectives

The aim of the study was to investigate whether maternal behavior may elicit a fetal physiological response, indicating early signs of maternal-fetal behavioral synchronization.

Methods:

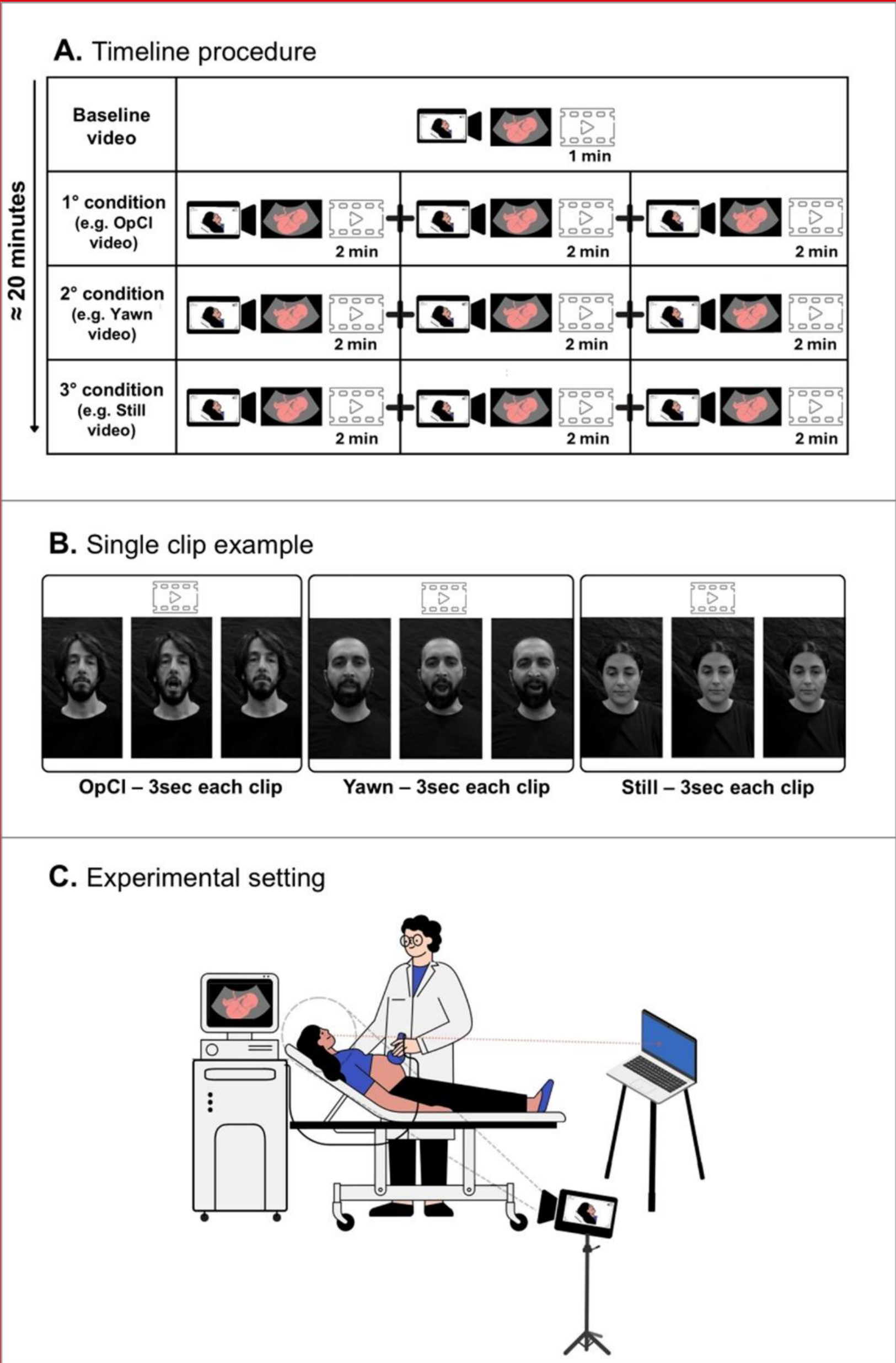
Monocentric prospective study conducted at a tertiary maternity unit and including singleton uncomplicated pregnancy between 28+0 and 32+6 weeks of gestation. Patients underwent a standardized transabdominal ultrasound examination, and fetal facial movements were recorded by insonating fetal nose and lips. Simultaneously, maternal facial expressions were captured using a dedicated camera. During the experimental session three series of videos consisting in three different experimental conditions, i.e. 1)yawning - clips showing individuals yawning (contagious behavior); 2) open/closure (OpCl) - clips of individuals opening and closing their mouths (non-contagious control behavior); 3) still face-clips of individuals with no emotional expression (control static moment) were shown to the patients.

Results

33 cases were included. Fetal yawning was recorded more frequently in the “yawning condition” compared to the others ($\chi^2=20.985$, $p < 0.001$, $\eta^2 = 0.27$). Regression analysis showed an increased frequency in fetal yawning following maternal yawning ($F_{(1,82)} = 23.14$, $p < 0.001$, $\eta^2 = 0.22$), with an estimated average increase of 0.78 yawns after the mother yawned. Moreover, there was a positive correlation between the number of maternal and fetal yawns ($\rho = 0.443$, $p = 0.011$).



Figure 1 –
A) Timeline procedure;
B) Simple clip example;
C) Experimental setting.



Conclusion

Findings from this study suggest that maternal behavior seems to directly influence fetal expressions as fetal yawning is more common following maternal yawns. This supports the hypothesis of early maternal-fetal dynamic and bidirectional relationships.