

Maternal and Infant Oral Proteomics: Connecting Health through Molecular Signatures

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FIGURE 1: Venn diagrams of the

identified proteins exclusive or

shared among the groups (PW, PP

Five proteins were common

across all groups: amylases-AMY

(AMY1A, AMY1B, AMY1C, AMY2A,

and IF).

ÀMY2B).

Background

- Pregnancy is characterized by hormonal and behavioral changes that directly impact the systemic and oral health of both mother and baby.
- Changes in appetite and diet, including increased carbohydrate intake, may contribute to metabolic and inflammatory imbalances.
- In this context, saliva emerges as a strategic biological fluid for investigating molecular markers related to maternal and child health.

Objective

To investigate the salivary proteomic profile in the mother-baby dyad before and after birth.

Methods

- Approved by Ethics Committee of the University São Francisco Brazil protocol number: 65319322.2.0000.5514.
- Twenty pregnant women (PW), in the third trimester were assessed for caries (DMFT) and periodontal condition (CPI).
- Socioeconomic data, including income, education, and dietary practices, were collected through questionnaires.
- · Saliva samples were collected from:



Saliva samples were analyzed using mass spectrometry.



Data were evaluated with descriptive statistics and bioinformatics.

- PW were from mid-level socioeconomic backgrounds and exhibited high prevalence of caries and periodontal disease.
 - Dental Caries index (DMFT/DMFS): 7.94 / 13.63
 - Periodontal index (CPI): 60% of the pregnant women had sextants in unhealthy conditions.
- The average BMI increased from 28.37 kg/m² in early pregnancy to 31.04 kg/m² in the third trimester, indicating **overweight** at both times.
- Thirty-five to 40% of PW reported high consumption of sugar-sweetened beverages, sweet cookies, and cakes.
- Gene ontology revealed recurring gene attributes among the groups, with varying expression levels.





Results

Pregnant Women

Postpartum Women

14

17

Infants

· The salivary proteomic profiles of PW, PP, and IF showed notable similarities, suggesting relevant biological interactions.

These findings may help develop strategies to modulate health and disease during pregnancy, with particular
attention to the impact of feeding practices and other social determinants associated with overweight.

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