Introduction/Background
- Premature infants are at high risk for poor feeding outcomes due to neurologic and physiologic immaturity
- Premature infants are also at high-risk for negative parent-infant interactions due to infant, parent, and environmental factors
- High quality parent-infant interactions contribute to successful newborn feeding outcomes through parent’s structuring and co-regulation of feeding
- Evidence suggests caregivers are able to regulate the neonate’s physiologic state
- Little is known about the effect of the quality of parent-infant interaction on the premature infant’s physiology during feeding

Theoretical Framework
Schore’s Regulation Theory posits that maternal behavior during an interaction can regulate sympathetic and parasympathetic systems of the infant
Positive parent-infant interaction leads to coordinated responses of these systems during feeding to provide better control of heart rate, respiratory rate, and oxygen saturation

Research Questions
1. What is the effect of parent-infant interaction on feeding skill, heart rate, respiratory rate, and oxygen saturation of premature infants during feeding over the first year of life?
2. How does gestational age, birth weight, and neurodevelopmental risk affect these outcomes?

Methods/Measurements
Primary data from the Correlates of Preterm and Term Infant Feeding Outcomes project, Dr. Karen Pridham PI

Participants
Infants were gestational age at birth ≤32 weeks, appropriate weight-for-age, previously diagnosed with respiratory distress syndrome (RDS), and on full oral feedings at discharge

Data Analysis
Multiple imputation to accommodate intermittent missing values
Repeate-measures general linear models (GLM) with multivariate regression using quality of parent-infant interaction as a time-varying covariate

Results
Infant Physiology and Skill Develop over Time

<table>
<thead>
<tr>
<th>Independent Measure</th>
<th>F</th>
<th>df</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gestational age</td>
<td>0.707</td>
<td>4,4514</td>
<td>0.588</td>
</tr>
<tr>
<td>Birth weight</td>
<td>0.377</td>
<td>4,677</td>
<td>0.244</td>
</tr>
<tr>
<td>Neurobiological Risk Score</td>
<td>1.368</td>
<td>4,777</td>
<td>0.244</td>
</tr>
<tr>
<td>Parent-infant interaction</td>
<td>1.722</td>
<td>4,5706</td>
<td>0.142</td>
</tr>
<tr>
<td>Time</td>
<td>73.53</td>
<td>4,3851</td>
<td>0.001</td>
</tr>
</tbody>
</table>

Quality of Interaction Over Time

<table>
<thead>
<tr>
<th>FG D</th>
<th>HR</th>
<th>RR</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1 mo.</td>
<td>4 mo.</td>
<td>8 mo.</td>
</tr>
</tbody>
</table>

Conclusion
1. Parent-infant interaction was not significantly related to feeding skill, heart rate, respiratory rate, or oxygen saturation during feeding over the first year of life
2. None of the covariates (gestational age, birth weight, neurobiological risk score) were significantly related to the dependent variables
3. Larger sample sizes are needed

Nursing Implications
Other physiologic indicators (heart rate variability, skin conductance) may alert parents to interaction behaviors which support or disrupt their infant’s feeding and should be studied
Knowledge of important parent-child interaction factors can assist nurses in providing improved assessment and intervention services to enhance outcomes for premature infants and their families.

Future Research Could...
Investigate nonlinear pathways involving parent interaction and infant physiology
Compare preterm vs. term infants
Determine other environmental and experiential factors impacting the infant’s physiology during feeding
Define the mechanisms by which quality of parent-child interaction affects feeding outcomes

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