Prenatal Smoke Exposure and Language Outcomes at 15 Months: Social Aspects of Communication vs Expressive and Receptive Language

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The goal of the study was to determine whether the social aspects of communication and children’s understanding and production of words are differentially related to prenatal smoke exposure.

METHODS
- Participants were recruited prenatally and detailed data on smoking and other risk factors were prospectively collected.
- At 15 months of age (mean=14.9, range=13.5-17.4), 72 children and their mothers participated in a developmental assessment that included: Receptive-Expressive Emergent Language Test (REEL), Communication and Symbolic Behavior Scales (CSBS DP; separate scales for Speech (expressive language), Symbolic (a receptive language subscale), and Social Communication).

RESULTS

<table>
<thead>
<tr>
<th></th>
<th>No Prenatal Smoke Exposure (NS) (n=27)</th>
<th>Prenatal Smoke Exposure (SMK) (n=45)</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSBS Social Composite Percentile</td>
<td>66.9</td>
<td>50.6</td>
<td>2.32</td>
<td>.023</td>
</tr>
<tr>
<td>CSBS Speech Composite Percentile</td>
<td>60.2</td>
<td>60.0</td>
<td>0.08</td>
<td>.939</td>
</tr>
<tr>
<td>CSBS Symbolic Composite Percentile</td>
<td>59.3</td>
<td>48.6</td>
<td>1.36</td>
<td>.179</td>
</tr>
<tr>
<td>REEL – Receptive Language Percentile</td>
<td>67.7</td>
<td>65.8</td>
<td>0.37</td>
<td>.711</td>
</tr>
<tr>
<td>REEL – Expressive Language Percentile</td>
<td>66.2</td>
<td>67.4</td>
<td>0.18</td>
<td>.858</td>
</tr>
</tbody>
</table>

The two groups (NS, SMK) did not differ significantly on most background or family characteristics; however, compared with NS children, the SMK group had mothers with significantly higher verbal IQ scores and were significantly more likely to have postnatal smoke exposure.

SMK children scored significantly lower than the NS children on the Social Composite, all social subscales, and the Object Use subscale of the CSBS DP.

SMK and NS children did not differ significantly on the Receptive or Expressive Language Scales of the REEL, nor on the Speech Composite or the Language Understanding subscale of the CSBD DP.

CONCLUSIONS
- In the current sample, the understanding and use of words was unrelated to prenatal smoke exposure.
- However, social and non-verbal aspects of communication were comparatively delayed among those with prenatal smoke exposure.
- Findings suggest that only certain aspects of language development may be impacted by prenatal smoke exposure, and suggest avenues for early intervention.
- This study is ongoing. Ultimately the sample size will be sufficient to determine if effects found are partially due to postnatal smoke exposure or other differences between groups, and if lack of effects on expressive and receptive language may be due to other group differences and/or a large number of children in the NS group whose mothers were exposed to second hand smoke during pregnancy.