Gesture screening in young infants with the UK-CDI: Highly sensitive to risk factors for communication delay

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INTRODUCTION

• When measuring early communication, many scales only assess vocabulary (comprehension and/or production).
• Youngest children (under 18 months) often have few spoken words
• So comprehension alone can be used
• CDIs (Communicative Development Inventories) (Fenson et al, 2007) are often used in this context but gesture is often an afterthought.
• Gesture scale of the MacArthur Bates CDI never-validated
• No other parent-completed gesture inventories validated in English to our knowledge
• Yet gesture often precedes vocabulary
• Closely related to language in children with delay (Thal & Tobias, 1997)
• Gesture validation and sensitivity to risk factors
• Biological (birth weight, prematurity)
• Social (birth order, SES factors)

SAMPLE AND CONCURRENT VALIDITY

• 1212 families from all regions and nations of UK
• Part of UK-CDI project (Alcock et al in prep., Alcock et al 2017)
• Infants aged 8-18 months
• Representative of UK SES
• Balanced as far as possible by month of age, gender
• Family questionnaire assessed risk and demographic characteristics
• Additional 32 families of babies aged 18-24 months
• Completed CDI
• Gesture challenge task carried out in lab
• Communicative and symbolic
• High, mid and low frequency items
  - Can you give me high five? (2 points)
  - Can you do me/like Mummy? (1 point)
  - Can you show me how to use this (e.g. glasses)? (2 points)
  - Can you do me/like Mummy? (1 point)

RESULTS – CONCURRENT VALIDITY

• Correlation with Gesture on CDI – r = .344, p = .054 (sig at 1-tail but due to a few outliers)
• Higher correlation between Gesture on CDI and Object Comprehension task (r = .419, p = .017)
• Broken down into types
  - Pretend gesture challenge correlated significantly with these items on CDI, overall CDI (r = .351, p = .049 and r = .394)
  - Games/routines gesture challenge did NOT correlate significantly with overall CDI
  (But Games/routines on CDI does correlate with overall CDI – likely measuring same global gesture construct)

RISK FACTORS

• Biological risk factors – significant correlations with CDI subscales

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>CDI Comp</th>
<th>CDI Prod</th>
<th>CDI Gesture</th>
</tr>
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<tbody>
<tr>
<td>Birthweight</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Prematurity</td>
<td>✓</td>
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• Social risk factors – significant correlations with CDI subscales

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</thead>
<tbody>
<tr>
<td>Gender</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Birth order</td>
<td>✓</td>
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• Controlling for age (ANCOVA) – significant effects of:

- Gestation: <33 weeks poorer gesture than any longer gestation
- Birthweight: Gesture, < 5.5lb poorer, Production, >= 10lb better
- Mum’s age: younger mums report more comprehension, oldest mums report less production
- Parent education: more well educated report more comprehension, degree level report more gesture
- Childcare: No childcare hours poorer gesture than mid-range of hours.

DISCUSSION

• Gesture scale appears to be more sensitive than
  - Production (but low variability at this age)
  - Comprehension (widely relied upon for screening)
• Also seems to be less vulnerable to anomalies
• Younger/less well educated parents may have expectations about vocabulary
• Families may have fewer expectations about gesture?
• Parental expectations - subject for future research

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References:


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