Understanding Language and Social Regression in Children with Autism Spectrum Disorder (ASD): Findings from the Study to Explore Early Development (SEED)

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Developmental Regression

- **Background**
- **Aims**
- **Methods**
- **Results**
- **Discussion**

**Development Regression:** Loss of previously-acquired skills

- Language
- Social
- Play

Children with ASD and regression
Aims

Aim 1: To Assess Proportions
- Language Regression
- Social Regression

Aim 2: To Examine Differences
- Developmental Levels
- Adaptive Functioning
- Behavior/Emotional Problems
Participants

671 met the case definition for ASD

=121

=550

Study to Explore Early Development (SEED): Phases 1, 2, and 3

Autism Diagnostic Observation Schedule (ADOS)

Autism Diagnostic Interview-Revised (ADI-R)
Aim 1: Proportions

Operational Definition: Developmental Regression

Four groups
Based on the ADI-R's regression section

<table>
<thead>
<tr>
<th>No regression</th>
<th>Language regression only</th>
<th>Social regression only</th>
<th>Language+social regression</th>
</tr>
</thead>
<tbody>
<tr>
<td>n: 497</td>
<td>n=60</td>
<td>n=58</td>
<td>n=56</td>
</tr>
<tr>
<td>Boys=409 (82.30%)</td>
<td>Boys=50 (83.30%)</td>
<td>Boys=48 (82.80%)</td>
<td>Boys=43 (76.80%)</td>
</tr>
<tr>
<td>Girls=88 (17.17%)</td>
<td>Girls=10 (16.70%)</td>
<td>Girls=10 (17.20%)</td>
<td>Girls=13 (23.20%)</td>
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Aim 2: Differences in Functioning

- To evaluate developmental levels (i.e., language, fine motor, and visual reception abilities).
- To assess adaptive skills (i.e., activities of daily living).
- To examine behavior and emotional problems (i.e., internalizing & externalizing problems).
Estimates of Language and Social Regression (Aim 1)

- **Figure 1:** Percentage of Language and Social Regression

<table>
<thead>
<tr>
<th>Regression Type</th>
<th>Percentage</th>
<th>Mean Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Regression</td>
<td>74.07%</td>
<td>54.54 mo.</td>
</tr>
<tr>
<td>Language Regression</td>
<td>8.94%</td>
<td>51.28 mo.</td>
</tr>
<tr>
<td>Social Regression</td>
<td>8.64%</td>
<td>56.18 mo.</td>
</tr>
<tr>
<td>Language+Social Regression</td>
<td>8.35%</td>
<td>58.57 mo.</td>
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Autism Diagnostic Interview-Revised (ADI-R)
Developmental Levels (Aim 2a)

- **Figure 2**: Differences between Groups in Developmental Levels

Mullen Scales of Early Learning (MSEL)

- No Regression Group
- Language Regression Group
- Social Regression Group
- Language & Social Regression Group

<table>
<thead>
<tr>
<th>MSEL-Visual Reception</th>
<th>MSEL-Fine Motor</th>
<th>MSEL-Receptive Language</th>
<th>MSEL-Expressive Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age Equivalent in Months</td>
<td></td>
<td></td>
<td></td>
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* Denotes significant differences.
Adaptive Functioning (Aim 2b)

- Figure 3: Differences between Groups in Adaptive Functioning

Figure 3: Differences between Groups in Adaptive Functioning

- No Regression Group
- Language Regression Group
- Social Regression Group
- Language & Social Regression Group

Vineland Adaptive Behavior Scales - Second Edition (Vineland-2)
Behavior and Emotional Problems (Aim 2c)

- Figure 4: Differences between Groups in Behavior and Emotional Problems

**Child Behavior Checklist (CBCL)**

- CBCL - Internalizing Behaviors
- CBCL - Externalizing Behaviors

**Groups**
- No Regression Group
- Language Regression Group
- Social Regression Group
- Language & Social Regression Group

*Significant differences indicated by asterisks (*)
Occurrence of Regression: 
~ 26% of children with ASD

Lower developmental levels during the preschool years

Lower adaptive communication skills

Increased internalizing problems

Discussion
Conclusions

Poor outcomes

Regression?

Seizures

Language skills/IQ

Aggression/
Self-Injurious Behaviors

Background | Aims | Methods | Results | Conclusions
Conclusions

Predictors of language regression and its association with subsequent communication development in children with autism

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Sample: n=421: 2-5 y.o.

#regression: n=90 (22%)

Phrase speech:
Same time

Followed up: 10 y.o.:
No differences in communication
Conclusions

- Earlier concerns?
- Earlier diagnosis?
- Earlier intervention services?

- Long term language effects
- Other areas?

Regression

Response to treatment?

Background | Aims | Methods | Results | Conclusions
--- | --- | --- | --- | ---
Conclusions

Underlying mechanism?

Regression

Internalizing Problems
References