Relationship between expressive language and behavior in young children at social risk

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Expressive Language and Behavior

- Is there a relationship between these two areas of potential difficulty for young children at social risk?
- If so, what is the nature of that relationship?
Poverty & Risk

- Children in poverty experience higher rates of risk factors that negatively predict academic achievement and social adjustment.
- The increased prevalence of these risk factors poses the threat to children’s achievement rather than poverty per se (Shaw, Ownes, Vondra, Keenan, & Winslow, 1996).
Figure 5.
Poverty Rates by Age: 1959 to 2010

Note: The data points are placed at the midpoints of the respective years. For information on recessions, see Appendix A.
Data for people aged 18 to 64 and 65 and older are not available from 1960 to 1965.
Poverty & Ethnicity: 2010

- White (non-Hispanic) Americans 10%
- Black Americans 27%
- Hispanic Americans 27%
Risk factors and Child Development: behavior problems

- Behavior problems in early childhood predict behavior problems and limited academic achievement during older childhood and adolescence (e.g., Egeland, Kalkoske, Gottesman, & Erickson, 1990; Tremblay, Phil, Vitaro, & Dobkin, 1994).
- Prevalence of behavior problems in young children across socioeconomic groups 10-15% (Campbell, 1995).
- Prevalence of behavior problems in young children growing up in poverty in U.S. 15-40% (Harden et al., 2000; Kaiser et al, 2002)
Risk factors and child development: language

- Language development is both qualitatively and quantitatively limited among children in poverty as compared to children in other socioeconomic groups (Committee on Integrating the Science of Early Childhood Development, 2000).
- Limitations in early language development may adversely affect academic achievement, particularly literacy (e.g., Hart & Risley, 1995).
Language & behavior problems:
common risk factors

Language     Behavior

- Depression
- Family conflict
- Parent education
- Father
- Attachment
## Common Risk Factors for Behavior Problems and Language Delay/Disorders

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Behavior Authors</th>
<th>Language Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited or no Father</td>
<td>Harden, Winslow, Kendziora, Shahinfar, Rubin, &amp; Fox et al. (2000)</td>
<td>McCue-Horwitz et al. (2003)</td>
</tr>
</tbody>
</table>
Research on association between language development and behavior problems

- National survey, 2004: Parents of children between 10 months and 6 years.
- 54% parents concerned about child’s behavior also concerned about language development.
- 1-2% of parents with concerns about behavior did not have concerns about language (Long, Gurka, & Blackman, 2008).
- Children from middle-income families were followed from 2 to 3 years of age. Expressive language skills at 2 and receptive language skills at age 3 negatively predicted parent ratings of behavior problems at age 3. That is, children with stronger language skills at 2 & 3 had fewer behavior problems at 3 (Carson, Klee, Williams, & Perry, 1998).
Language development and behavior problems, continued

- 3-year-old Head start children: Children with standard scores of 80 (1.3 SD below mean) and below on the Preschool Language Scale-3 (Zimmerman, Steiner, & Pond, 1992), a measure of overall language skills, were more likely to have clinically significant teacher behavior problem ratings (Kaiser, Cai, & Hancock, 2002).
Behavior problems and expressive language

- Children with expressive vocabulary delays (2.5 SD or more, Expressive One Word Picture Vocabulary Test; Gardner, 1981) and adequate receptive skills matched for age, sex, receptive skills with control group.

- Children with expressive vocabulary delays had significantly higher scores on behavior problems identified by direct observation (Caulfield, Fischel, DeBaryshe, & Whitehurst, 1989).
Self-regulation/Effortful control
I’m hungry!
Internal state words and executive function

Children’s ability to use words to use internal state words (parental checklist) at 24 months predicted their performance at 24 & 39 months on executive function tasks, controlling for age, sex, and overall verbal ability (Carlson, Mandell, & Williams, 2004).
Current study: research questions

- Do expressive language skills have an inverse relationship with classroom behavior problems for 3-to-5-year-old children at social risk? If so, do expressive language skills negatively predict classroom behavior problems?

- Does knowledge and use of internal state words have an inverse relationship with classroom behavior problems for 3 to 5-year-old children at social risk? If so, does knowledge and use of internal state words negatively predict classroom behavior problems?
Method: Participants

- Participants: 59 children, ages 3-5 years, attending preschool program in low-income neighborhoods of Minneapolis, Minnesota. Monolingual English speakers.
- Mean age=47 months; range=36-59 months.
- 28 girls and 31 boys.
- Ethnicity (parent report): 37 African American, 14 Native American, 3 Hispanic, 2 Caucasian, 3 multi-ethnic.
- Four participating programs. Two programs received child referrals from agencies serving families with identified social risk factors including addiction, child abuse, mental health issues. Over 95% of children served by these programs receive tuition subsidies and free or reduced-fee meals based on family income.
## Methods: Direct Measures

### Expressive Language

- PLS-5 expressive communication (Zimmerman, Steiner, & Pond, 2011)

### Internal State Words

1. Picture description task (principal investigator)
2. Story retell (principal investigator)

### Nonverbal intelligence (control measure)

- Leiter International Performance Scale-Revised Brief IQ (Roid & Miller, 1997)

### Classroom behavior problems

- Direct observation: child compliance/noncompliance to teacher directives
- Caregiver-Teacher Rating Form (Achenbach & Rescorla, 2000)
Methods: Indirect (control) measures

- Age of child (months)
- Gender
- Program (1-4)
- Teacher years of experience
Perception

My teacher said “How does the cereal (taste)?
Physiology

Why are these children drinking water? (thirsty)
Emotion/Affect

What is this girl doing? (cry/crying)
Volition and ability

These children are very hungry. Food is what they (want/need).
Cognition

She is not really a doctor, but it is fun to (play/pretend).
Moral obligation

This girl says “I don’t want to go to bed.” But her mother says “You (have to/hafta).”
Picnic by Emily Arnold McCully
Bitty Mouse is crying. She is very sad. And Bitty feels scared.
The mouse family is so happy to see Bitty. Mother and Father Mouse kiss her. “We love you, Bitty” say the little mice. “You were very brave, Bitty,” says Grandpa Mouse. “We are very proud of you.”
Measures, con’t.

- Classroom behavior
  - Compliance to teacher directives
  - Teacher behavior ratings.
Expressive language
Classroom behavior problems: teacher ratings

Mean = 53.93
Std. Dev. = 11.713
N = 59
## Descriptive statistics

<table>
<thead>
<tr>
<th>Measure</th>
<th>Mean</th>
<th>SD</th>
<th>Range</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISW Picture</td>
<td>28 (47 items)</td>
<td>8</td>
<td>8-39</td>
<td>57</td>
</tr>
<tr>
<td>ISW Story</td>
<td>9%</td>
<td>3%</td>
<td>2-15%</td>
<td>55</td>
</tr>
<tr>
<td>Noncompliance</td>
<td>26%</td>
<td>22%</td>
<td>0-91%</td>
<td>43</td>
</tr>
</tbody>
</table>
Research Questions

- Do expressive language skills have an inverse relationship with classroom behavior problems for 3-to-5-year old children at social risk?
- Does knowledge and use of internal state words have an inverse relationship with classroom behavior problems for 3 to 5-year-old children at social risk?
Results

Expressive Language Skills

- Do expressive language skills have an inverse relationship with classroom behavior problems for 3-to-5-year old children at social risk?

- YES. PLS-5 expressive communication standard scores were negatively correlated with both proportion of noncompliance to directives ($r=-.384, p=.011$) and teacher behavior ratings ($r=-.382, p=.003$).
Results: Internal state words

• Does knowledge and use of internal state words have an inverse relationship with classroom behavior problems for 3 to 5-year-old children at social risk?
  • YES. Controlling for age, number of correct responses on the internal state word picture description task was negatively correlated with percent of noncompliance to directives ($r=-.365$, $p=.02$) as well as teacher behavior problem ratings ($r=-.364$, $p=.007$).
  • NO. Percent of different words during story retell that were internal state words was not associated with percent of noncompliance to directives ($r=.148$, $p=.369$) or teacher behavior problem ratings ($r=-.046$, $p=.741$).
Research Questions

• Do expressive language skills negatively predict classroom behavior problems?

• Does knowledge and use of internal state words negatively predict classroom behavior problems?

• Regression analysis: Age + ISW (picture) + PLS-5 (expressive)

• 1. noncompliance to directives

• 2. teacher behavior problem rating
Results, continued

- Do expressive language skills (PLS-5) negatively predict classroom behavior problems (percent of noncompliance to directives)?
  - No.
  - PLS-5 scores did not predict a significant amount of variation in noncompliance percentages.
Do expressive language skills (PLS-5) negatively predict behavior problems (teacher ratings)?

Yes.

For every decrease in PLS-5 score of .4, behavior problem ratings increased by score of 1.
Results, continued

- Does knowledge and use of internal state words (picture description) predict classroom behavior problems?
  - No.
  - Controlling for expressive language skills (PLS-5), knowledge and use of internal state words (picture description task) did not predict a significant amount of variation in either classroom behavior problem measure (noncompliance percentages or teacher behavior problem ratings).
## Summary of Results

<table>
<thead>
<tr>
<th>Expressive Language Measures</th>
<th>Classroom behavior problems</th>
<th>Teacher behavior problem ratings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noncompliance to directives</td>
<td>Negative association</td>
<td>Negative association</td>
</tr>
<tr>
<td>Negative prediction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLS-5</td>
<td>Negative association</td>
<td>Negative association</td>
</tr>
<tr>
<td>Internal state word picture task</td>
<td>Negative association</td>
<td>Negative association</td>
</tr>
</tbody>
</table>
Study limitations

- Measurement tools for knowledge and use of internal state words.
- Coding of problem behaviors in the classroom: inter-rater reliability.
Key messages

- Social risk factors represent challenges to both social-emotional and language development in young children.
- Young children with language delays/disorders are at increased risk for behavior problems.
- The current study found that expressive communication skills predicted teacher behavior problem ratings of 3-to-5-year-old children at social risk.
- For young children at social risk, strong expressive language skills appear to protect against behavior problems as rated by teachers.
Implications

• Internal state words appear to develop in a direct relationship to overall expressive vocabulary.
• Therefore, they should be provided in the context of overall expressive vocabulary goals.
• Strong expressive language skills appear to be a protective factor in preventing behavior problems as rated by teachers for young children at social risk.
• Speech and language pathologists may play a key role in facilitating strong language skills for young children at social risk.