

Sources of plasticity in preterm-born children's language development: Interacting roles of gestational age and parent-child interactions

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Introduction

- ❖ Every year, around 15 million children worldwide are born preterm (< 37 weeks gestation; Wolke et al., 2019)
- ❖ This has led to an increased risk for disability and neurodevelopmental delays (i.e., language delays)
- ❖ Not all preterm born (PTB) children fall behind – some have favorable neurodevelopmental trajectories
- ❖ Yet, literature explaining *why* some PTB children fall behind, but not others, is still in its infancy
- ❖ Prior emphasis has been on the role of biological factors (e.g., gestational age)
- ❖ Models predicting variability in PTB children's language development have been met with limited success
- ❖ Parental socioeconomic status (SES) might moderate relations between prematurity and language outcomes
 - ❖ SES consist of myriad subcomponents
- ❖ Studies on Term (~40 weeks gestation) children highlight the role of more immediate parent-child interactions (Demir-Lira et al., 2019; Rowe, 2012)
 - ❖ Promotive vs. Protective factors
- ❖ Less is known about why parents differ in the quality and quantity of interactions – the *sources* of variability
 - ❖ Parental knowledge and expectations of child language development

Current Study

- ❖ What is the role of parent-child language activities in preterm- and term-born child language outcomes?
 - ❖ *Do activities play the same or different role for children born at different gestational ages?*
- ❖ What is the role of parental knowledge/expectations in parent-child language activities?
 - ❖ *Do activities mediate the relations between parental knowledge/expectations and child language outcomes?*

Methodology

Sample

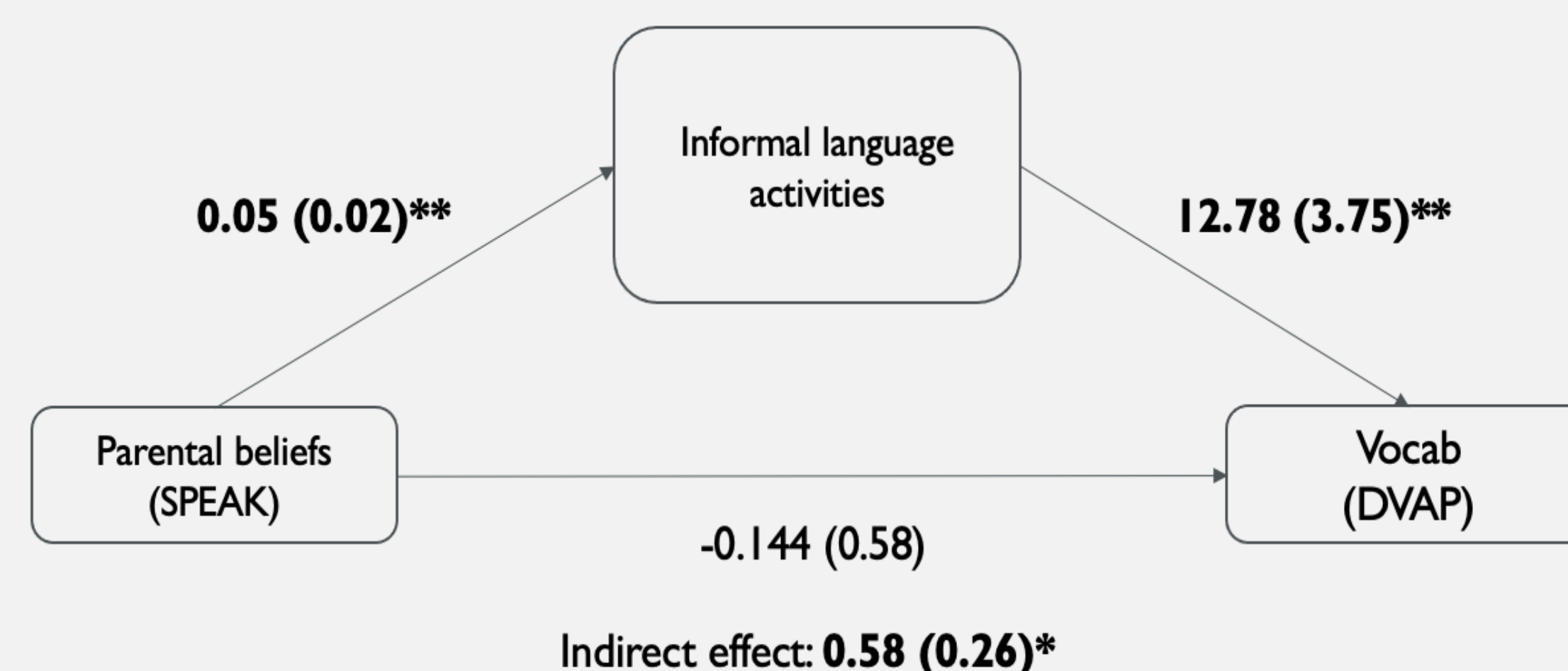
- ❖ 158 children 3- to 5-years (M = 4.93, SD = .54)
 - ❖ 27 Early preterm (≤ 32 weeks)
 - ❖ 43 Moderate/late preterm (33 – 36 weeks)
 - ❖ 88 Term (≥ 39 weeks)

Measures

- ❖ **Medical risk** (Adams et al., 2018)
 - ❖ E.g., intraventricular hemorrhage, and respiratory distress syndrome)
- ❖ **Parent-child language activities** (Senechal et al., 1998)
 - ❖ **Formal activities**
 - ❖ E.g., Teaching the child, the meaning of words
 - ❖ **Informal activities**
 - ❖ E.g., Exposure to story books
- ❖ **Parental knowledge/expectations about child language development**
 - ❖ E.g., “Infants who are too young to talk might communicate by cooing or smiling.”
- ❖ **Vocabulary acquisition** (Developmental Vocabulary Assessment for Parent; Suskind et al., 2018)
- ❖ **Verbal comprehension** (Wechsler Preschool and Primary Scale of Intelligence: Verbal Comprehension Index; Wechsler, 2012)

Results

- ❖ Two mediation models relating parental knowledge/expectations to parent-child language activities to children's language outcomes were conducted:



Results

- ❖ Two sequences of multiple linear regressions were conducted:

Vocabulary (DVAP)	Model 1	Model 2	Model 3
Intercept	-5.26 (36.47)	-26.70 (35.00)	-31.00 (34.75)
Child age	14.31 (6.04)*	9.73 (5.72)	10.47 (5.64)
Parent education	7.65 (3.01)*	5.99 (2.85)*	4.65 (2.89)
Late Preterm	-0.17 (7.67)	3.50 (7.20)	0.57 (7.08)
Early Preterm	1.61 (9.50)	14.57 (19.44)	8.74 (8.90)
Formal activities	-	9.67 (2.63)***	-
Late Preterm x Formal activities	-	-	-
Early Preterm x Formal activities	-	-	-
Informal activities	-	-	14.29 (3.53)***
Late Preterm x Informal activities	-	-	-
Early Preterm x Informal activities	-	-	-
Adjusted R ²	7%	15%	17%

- ❖ Note: No significant differences in vocabulary emerged between early preterm and late preterm when compared to their term-born peers

Verbal Comprehension (WPPSI-IVVCI)	Model 1	Model 2	Model 3
Intercept	84.54 (7.26)***	72.39 (8.24)***	76.37 (8.48)***
Parent education	4.36 (1.13)***	3.65 (1.14)**	3.79 (1.17)**
Late Preterm	-7.15 (2.69)**	-6.01 (2.66)*	-6.87 (2.69)*
Early Preterm	-9.86 (3.51)**	-8.09 (3.49)*	-9.58 (3.50)**
Formal language activities	-	2.98 (1.02)**	-
Late Preterm x Formal activities	-	-	-
Early Preterm x Formal activities	-	-	-
Informal activities	-	-	2.65 (1.44)
Late Preterm x Informal activities	-	-	-
Early Preterm x Informal activities	-	-	-
Adjusted R ²	19%	23%	20%

- ❖ Note: Early preterm and late preterm significantly performed worse on verbal comprehension than their term-born peers

Conclusion

- ❖ Parent-child activities matter for language development, over and above gestational age, medical risk, and broad environmental factors such as parent education
 - ❖ Suggesting, parent-child activities may act as a promotive factor in relation to children's vocabulary and verbal comprehension regardless of prematurity
- ❖ Informal activities mediates the relations between parental knowledge/expectations and vocabulary acquisition
 - ❖ Suggesting, parents who know more about child language development in preschool years might more readily integrate language activities in their daily interactions, which in turn might predict better vocabulary skills

Future Directions

- ❖ PREMISE Study
- ❖ Our goal is to better understand how these factors, such as parent-child activities and parental knowledge/expectations, came about

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