

The Relationship of Oral-Motor Feeding and Communication Skills to Later Language Skills in Premature Infants

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American Speech-Language-Hearing Association Convention, Boston MA:
November 17, 2007

Agenda

Research interest- dissertation study:

- Define terms
- Brief review of literature
- Outline research questions
- Implications

Defining “Premature” Infant

- Premature= <37 weeks gestation
- My research all infants <35 weeks
- VLBW= very low birth weight
- <1500g (3.5 lbs)

Rates of Prematurity in USA

- According to the March of Dimes (www.marchofdimes.com)
- Increasing rates
- Currently 12.5% <37
- 10,000 babies a week
- 8% VLBW <3.5 lbs
- Highest for African American infants at 18%
- Annual societal economic cost (2005) \$26.2 billion

Early Communication Research

- Communication development occurs in the context of social interactions (e.g. Lewis & Freedle, 1973; Sameroff, 1975; Bruner, 1981)
- Feeding interactions represent a frequently occurring context for communication that begins at birth (Sparling & Rogers, 1985; Satter, 2000).
- Second half of the first year of life early vocalizations and communicative behaviors **emerge** (Davis & MacNeilage, 1995; Oller et al., 1999; Thal and Tobias, 1992, 1994)

Preterm Infant Research

- Behaviorally: little vocalization, less socially interactive when compared to full terms at 6 months during feeding interactions (Mathisen et al., 2000)
- Approx 50% of VLBW infants will go on to exhibit delays or LD by school age, including later speech and language delays (Aram et al., 1991)

Premature Infant Feeding Cues

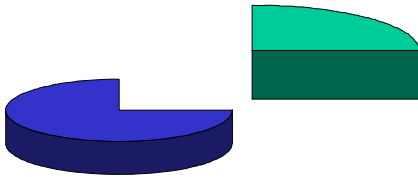
- “Communication” very different in premature infants
- Caregivers not always able to easily read infant feeding cues
- May set foundation for altered communication

Premature Infants

- Many preterms need feeding tubes in NICU- early experiences may set infant on altered trajectory for feeding skills
- Infants and young children with disabilities may also have difficulties with eating, drinking, and swallowing

Prevalence of Feeding Problems

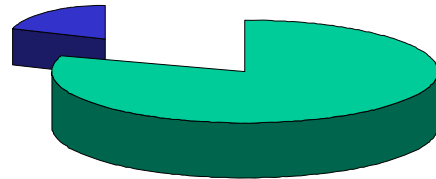
- **25%** of all children



(Manikam & Perman, 2000)

Prevalence of Feeding Problems

- **80%** of children with developmental delays.



Feeding Skills Research

- Preterms found to have significant ongoing feeding difficulties/at risk for continued feeding problems (Hawdon et al., 2000)
- Inconsistencies with regard to oral-motor skill development, fewer readiness behaviors for solids (Mathisen et al., 2000)

*Abnormal Feeding Patterns

- Prolonged sucking w/out breathing
- Short sucking bursts
- Disorganized sucking
- Differences between NNS and NS
- Coughing and choking

*What is a feeding problem?

- Failure to progress with feeding skills can be anywhere along the digestive tract
- Successful feeding = adequate anatomy and function of oral-pharyngeal structures
- child's medical status, especially respiration and digestion (Gisel & Alphonse, 1995)

My research questions...

- What is the relationship between oral-motor/feeding problems and speech and language development?
- Structures used are same for both
- Might feeding problems early on be developmental "red flags" of later communication delays or disorders?

Dissertation Research

- Extends existing research:
 - Naturalistic observation of oral-motor feeding skills and communicative acts at mealtime
 - 6 month olds transitioning to solid foods
 - Documentation of communicative acts: vocalizations and non-vocal/pre-gestural acts
 - Relationship with child speech and language outcomes at 2 years of age

Why examine this relationship?

- Clinical assumptions (based on same structures)
- Preterm infants are found to be less socially interactive, less engaging and less communicative (Aram et al., 1991; Hawdon et al., 2000; Selley et al., 2001; Mathisen et al., 2000)
- What would such information provide us with regard to early identification and intervention?

Purpose of Dissertation Study

- To examine the early oral-motor feeding skills and communicative behavioral acts of preterm infants at 6 months adjusted age.
- To document the relationship between these early skills and later speech and language skills at two years of age.

Research Questions

1. **Do early communicative behavioral acts during feeding interactions at 6 months of age predict later speech and language skills at 2 years of age in preterm infants?**

1A. What aspects of early communicative behaviors have greatest predictive value for later speech and language skills (looking, vocalizing acts, early pre-gestural acts)

1B. What aspects of early communicative behaviors are most predictive of Expressive Communication/Auditory Comprehension subscores on the PLS-4 at 2 years of age?

Research Questions

2. Do early oral-motor feeding skills at 6 months of age predict later speech and language skills at 2 years of age in preterm infants?

2A. What aspects of early oral-motor feeding skills at 6 months are most predictive of later speech and language skills (e.g. active lips, smooth rhythmic sequence to suck)

2B. What aspects of early OM-feeding skills most predictive of AC/EC at 2 years of age?

Data

- Diane Holditch Davis' longitudinal datasets on preterm infants in UNC SON
- 6 month video footage of interaction
- Coding as "Yes/No" for behaviors/skills
- Language scores at 2 years of age

Data Coding

Severity Rating Scales-Composite Scores

1. Early Communication "Red Flags"
2. Mealtime Communication "Red Flags"
3. Oral Motor Dysfunction- Bottle Feeding
OR
Oral Motor Dysfunction- Spoon Feeding

Implications

- Identifying which children and their caregivers might benefit most from intervention at 6 months re: feeding and early communication
- Design a screening tool in the future that would measure both feeding skills and communication during mealtime interactions
- Design an intervention program

Conclusion

- Hope to tell "the rest of the story" at a later date- my results (currently coding)
- Challenge you all to consider feeding interactions as the earliest opportunities for communication between caregivers and infants.

Resources

- Schedule for Oral Motor Assessment (SOMA)
- The SOMA was developed to record oral-motor skills objectively in infants and young children (8-24 month)
- Aim is to identify areas of dysfunction that could contribute to feeding difficulties.
- Questions? mccomish@med.unc.edu