Development and Assessment of Psychometric Properties of the Child Oral and Motor Proficiency Scale (ChOMPS)

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BACKGROUND

- Systematic examination of childhood feeding problems and intervention has been difficult due to a lack of comprehensive, valid, and reliable measures.
- The Feeding Flock Research Team developed the Pediatric Eating Assessment Tool (PediEAT) to measure symptoms of problematic feeding in young children.
- The Child Oral and Motor Proficiency Scale (ChOMPS) was developed as a parent-report measure for children 6 months to 7 years old that assesses oral motor skills directly related to eating as well as fundamental motor skills supportive of successful and safe oral intake.

PURPOSE

- To present the development and psychometric properties of the ChOMPS.

METHODS

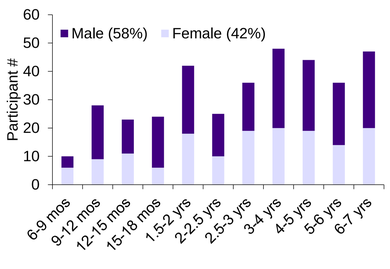
Item Generation and Content Validation

- Step 1: Initial items derived from literature review and existing tools.
- Step 2: Clinical and research experts in pediatric feeding evaluated the clarity and relevance of the items using content validity indices (CVI).
- Step 3: Using cognitive interviews, 19 parents of children with/without feeding problems gave feedback on interpretation of the items.
- Step 4: Readability was assessed.

Assessment of Psychometric Properties

- Sample: 364 parents of children from across the U.S. and 6 countries (2% from outside the U.S.).
  - 95% mothers, 91% two-parent household
  - 18% non-white, 7% high school education or less
  - 13% <$40,000 income/year

Target Child Characteristics



49% Feeding problem
12% Feeding tube
22% History of prematurity
20% Developmental delay
13% Sensory processing D.
11% Genetic disorder
8% Congenital heart disease
9% Cerebral palsy
7% Autism spectrum D.

- Procedures
  - Parents invited to complete the online survey.
  - 2 weeks later, 79 parents repeated the ChOMPS to examine test-retest reliability.
- Data Analysis
  - Principle component analysis with varimax rotation to identify the best fit factor structure of the ChOMPS.
  - Cronbach's α and Pearson's correlation to assess reliability.
  - T-test to compare the ChOMPS scores between children with and without feeding problems.

RESULTS

Item Generation and Content Validation

- 69 initial items were generated.
- Scale-level CVI was acceptable both for relevance (.96) and clarity (.90). Items with item-level CVI <.78 for either relevance or clarity were reviewed by the team and refined.
- The ChOMPS was further refined based on parents' feedback during the cognitive interviews. The revised ChOMPS consists of 70 items.
- Readability was acceptable at a < 6th grade reading level.

❖ **Examples of ChOMPS items**

My child can...		YES	SOMETIMES	NOT YET
24.	hold head up when lying on tummy	☐	☐	☐
25.	pull up to stand	☐	☐	☐
26.	stand holding on to something (such as, a table or couch)	☐	☐	☐
44.	use tongue to move food around in mouth	☐	☐	☐
45.	keep solid food in mouth when eating	☐	☐	☐
46.	keep tongue in mouth when food is offered on a spoon	☐	☐	☐

Assessment of Psychometric Properties

❖ **Internal Consistency Reliability**

- Exploratory factor analysis yielded 4 subscales with 63 items.
- Each subscale has strong internal consistency reliability.

Subscale	# of item	Cronbach's α
Complex Movement Patterns	23	0.971
Basic Movement Patterns	20	0.941
Oral-Motor Coordination	14	0.934
Fundamental Oral-Motor Skills	6	0.735

❖ **Test-Retest Reliability**

- ChOMPS demonstrated strong temporal stability over 2 weeks.

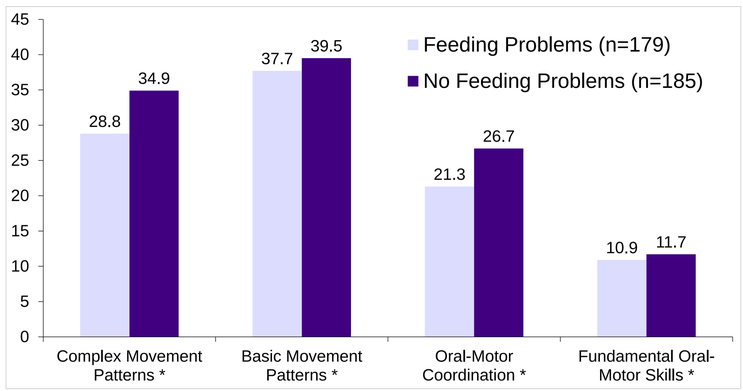
	Test M (SD)	Retest M (SD)	*r* *
Total ChOMPS Score	110.6 (19.2)	112.2 (18.6)	0.980
Complex Movement Patterns	34.8 (13.0)	35.8 (12.2)	0.975
Basic Movement Patterns	39.2 (3.7)	39.2 (4.4)	0.981
Oral-Motor Coordination	25.1 (4.5)	25.5 (4.4)	0.958
Fundamental Oral-Motor Skills	11.5 (1.0)	11.6 (1.1)	0.800

* Pearson's correlation coefficient: p <.001

Picture source: http://www.healthychild.org/fda-takes-a-baby-step-to-limit-arsenic-in-rice-cereal/

❖ **Construct Validity (Known-Group Validation)**

- Each subscale of the ChOMPS differentiated children with feeding problems from those without.



* Independent t-test: p < .001

DISCUSSION

- The ChOMPS is a 63-item parent-report assessment of young children; consists of 4 subscales that measure distinct aspects of skills related to eating.
- Psychometric testing indicated that the ChOMPS was reliable, valid, and able to differentiate children with feeding problems from those without.
- The ChOMPS can be used with three other parent-report tools (PediEAT, NeoEAT, and FaMMFeed) developed by the Feeding Flock Research Team to identify children with feeding problems, tailor interventions, and evaluate intervention effectiveness.

FUTURE DIRECTIONS

- Norm-referenced testing of the ChOMPS to establish a scoring system for different ages.
- Longitudinal study to track the emergence of feeding problems in at risk children from birth through 2 years old.
- Epidemiologic study of the prevalence of feeding problems in young children.

Acknowledgements

This study was supported by Boston College Research Incentive Grant (RIG). We would like to thank all of the families, clinicians, and researchers who have supported and encouraged our efforts.