

Evaluation of the Technical Adequacy of a Parent-completed Inventory of Developmental Skills



Jantina Clifford, Ph.D.
Jane Squires, Ph.D.

Early Intervention Program,
University of Oregon

For more information contact
Jantina Clifford
jantinac@uoregon.edu
(541)346-2599

BACKGROUND

What are the Ages and Stages Questionnaires: Inventory?

- ✓ A series of age-specific inventories for infants, toddlers and preschool aged children, each containing 125-150 items.
- ✓ Items are drawn from the Ages and Stages Questionnaires (Bricker & Squires, 1999).
- ✓ Cover 5 developmental domains: Communication, Gross Motor, Fine Motor, Problem Solving and Personal-Social.
- ✓ Allow parents to perform an in-depth evaluation of their child's current behaviors in a home setting.

Initial analyses suggest that the ASQ:IT may be an effective tool for use as a bridge between screening and eligibility, as well as a program evaluation measure.

BACKGROUND

Advantages of the ASQ:I

The ASQ:I are authentic measures that:

- ✓ Can be used for screening by linking to the ASQ.
- ✓ Can be used to monitor child progress.
- ✓ Can be used for program evaluation.
- ✓ Are designed for infants and young children.
- ✓ Can be administered in a home or community setting.
- ✓ Encourage the involvement of parents in the assessment process.
- ✓ Are cost effective.

BACKGROUND

Purpose of Study

To provide initial psychometric data on the field-test version of the Ages and Stages Questionnaires: Inventory for Toddlers (ASQ:IT), for children ages 18 to 36 months.

RESEARCH QUESTIONS

Validity

Concurrent Validity:

What is the agreement between scores on the ASQ:IT and the Battelle Developmental Inventory-Second Edition (Newborg, 2005) when completed by a professional examiner?

RESEARCH QUESTIONS

Reliability

Inter-rater Agreement:

What is the agreement between scores on the ASQ:IT when completed by a parent and by a professional examiner?

RESEARCH QUESTIONS

Internal Consistency:

1. What are the levels of internal consistency *within* domains of the ASQ:IT ?
2. What are the levels of internal consistency *across* domains of the ASQ:IT ?

RESEARCH QUESTIONS

Utility

1. **Parent Satisfaction:** Ease of completion and benefits of completing the ASQ:IT.
2. **Cost:** How much time did parents spend completing ASQ:IT?

METHODS

Measures

Ages and Stages Questionnaires: Inventory for Toddlers
(Unpublished).
Draft Version A: *Items arranged in random order.*
Draft Version B: *Items arranged in hierarchical order according to difficulty.*

Battelle Developmental Inventory-Second Edition
(Newborg, 2005)

Family Information Form (*Demographics*)

Satisfaction Survey (*Utility*)

METHODS

Data Collection

Phase 1

For 96 families with toddlers ages 18-36 months:

1. Parent completed **Family Information Form**
2. Parent completed **ASQ:IT-A** (random order)
3. Parent completed **Satisfaction Survey**

Phase 2

For 54 families (43 from Phase 1):

1. Parent completed **ASQ:IT-B** (developmental order)
2. Research assistant completed **ASQ:IT-B**
3. Research assistant administered **BDI-2**.

METHODS

Participants

		Phase	
		1	2
		Phase 2: n = 54	
Phase 1: n = 96		Phase 2: n = 54	
Child Gender	Male	45%	27%
	Female	55%	73%
Child Age (Months)	Mean	26.71	25.80
	Standard Deviation	6.14	6.33
Mother's Education	< High School	3%	3%
	High School	7%	0%
	Associate's Degree	6%	13%
	Some College	22%	27%
	Bachelor's/Graduate	63%	57%

METHODS

Participants

		Phase	
		1	2
		Phase 2: n = 54	
Phase 1: n = 96		Phase 2: n = 54	
Ethnicity	Asian	7%	7%
	White	74%	70%
	Black	1%	0%
	Hispanic	3%	7%
	Mixed	15%	14%
Income	0-\$12,000	8%	10%
	\$12,000-\$24,000	17%	27%
	\$24,000-\$40,000	18%	20%
	\$40,000-\$60,000	21%	13%
	Above \$60,000	36%	30%

RESULTS

Concurrent Validity

ASQ:IT-B Domain	Correlation	BDI-2 Domain (followed by sub-domain)
Communication	0.94*	Communication (Receptive and Expressive)
Gross Motor	0.88*	Motor (Gross Motor)
Fine Motor	0.93*	Motor (Fine and Perceptual Motor)
Problem Solving	0.91*	Cognitive (Attention & Memory, Reasoning & Academic Skills, Perception & Concepts)
Personal-social	0.90*	Adaptive (Self-Care, Personal Responsibility) & Personal-Social (Adult Interaction, Peer Interaction, Self-Concept and Social Role)
Total Score	0.96*	Total Score

Data Source = Phase 2 data set (n = 54). * Pearson 2-tailed correlations are significant at p < .01.

RESULTS

Inter-rater Agreement, Internal Consistency, and Inter-correlations between domains

	Communication	Gross Motor	Fine Motor	Problem Solving	Personal-social
Inter-rater Agreement** ASQ:IT	0.90	0.74	0.75	0.83	0.80
Internal Consistency ASQ:IT	0.93	0.88	0.92	0.92	0.90
Total Score	0.93*	0.83*	0.88*	0.95*	0.91*
Inter-correlations between ASQ:IT and total score	Communication	0.72*	0.72*	0.87*	0.80*
	Gross Motor		0.68*	0.75*	0.66*
	Fine Motor			0.78*	0.79*
	Problem Solving				0.82*

Note: Data is from Phase 2, (n = 53); * Pearson 2-tailed correlations are significant at p < .01; **Intraclass correlations

RESULTS

Utility

Time to complete the ASQ:IT-A

Less than 20 minutes	3%
20 - 40 minutes	46%
40 - 60 minutes	35%
More than 60 minutes	16%

Items were easy to understand:

Yes	72%
Sometimes	26%
No	1%

The ASQ:IT...

Was fun to do	45%
Was interesting	61%
Alerted me to new skills	48%
Gave me new ideas	32%
Took too long	7%
Didn't tell me much	3%

SUMMARY

Limitations

Limitations:

- Participants were under-representative for
 - race/ethnicity
 - income
 - mother's education level
- Risk families under-represented
- Only one measure of concurrent validity
- Single research assistant

SUMMARY

Future Directions

Development of ASQ:IT pilot version with:

- Items hierarchically arranged according to difficulty using Item Response Theory
- Starting points determined by child's age
- Basals and ceilings
- Cut-offs for different age intervals

Recommendations

- Study sample will include diverse subjects and children with disabilities.
- Other traditional measures will be used for evidence of concurrent validity.
- Multiple administrators to evaluate inter-rater reliability.

References

Bricker, D. & Squires, J. (1999). The ages and stages questionnaires: A parent-completed child monitoring system (2nd ed.). Baltimore: Paul H. Brookes Publishing.

Newborg, J. (2005). Battelle Developmental Inventory, 2nd Edition. Itasca, IL: Riverside Publishing.

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