ORGANIZATION NEWS

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Brief Review of Psychometric Properties and Clinical Utility of the Ages and Stages Questionnaires, Third Edition for Evaluating Pediatric Development

Aliza Rothstein, MS, OTR/L, Ana Miskovic, BA, Kristian Nitsch, MS

The Ages and Stages Questionnaires, Third Edition (ASQ-3) was developed for use in pediatric developmental screening to determine the need for further evaluation of developmental delay.[1,2] This screening tool is a system of 21 age-specific questionnaires for children 1 to 66 months of age.[1,2] The ASQ-3 measures 5 developmental domains: gross motor, fine motor, communication, problem-solving, and personal-social, with items rated as typical development, need for monitoring, and need for further assessment. A professional or caregiver can complete the ASQ-3, allowing this tool the potential to be completed a parent or caregiver before being seen by a clinician. The ASQ-3 has shown to be a reliable and valid instrument for determining the need for further developmental evaluation. The ASQ-3 was found to have excellent test-retest reliability among 4 of the 5 domains measured by the tool.[1,3] This measure has shown to have both excellent interrater reliability[4] and excellent concurrent validity in children >30 months of age.[3] The ASQ-3 has been translated and validated into multiple languages,[5] and studies have shown both the disadvantages[3] and the effectiveness of the measure when translated and culturally adapted for use in various countries.[6,7]

This abbreviated summary provides a review of the psychometric properties of the ASQ-3 in pediatric populations. A full review of the ASQ-3 and reviews of nearly 370 other instruments for patients with various health conditions can be found at www.rehabmeasures.org.

Please address correspondence to rehabmeasures@ric.org.

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Rehabilitation MEASURES	Measure Name: Ages and Stages Questionnaires-3rd Edition	Acronym: ASQ-3	Authors: A. Rothstein, A. Miskovic & K. Nitsch

Population: Pediatric: 1- 66 Months	Administration Time: 21 questionnaires: 10-15 minutes per questionnaire	Cost of Measures: Starter Kit: $275	Items: 30 per questionnaire

Required Equipment:

- Questionnaires and key forms. Additionally, a materials starter kit is available to encourage children to participate and facilitate administration of the questionnaires.

- **Kit includes:** Baby bottle, large ball, small ball, beads, wordless picture book, storybook with pictures, small blocks, bowl, coloring book, crayons, cup, child-sized fork, multiple jars, mirror, puzzle, child-safe scissors, shoelace, child-sized spoon, stuffed doll, keys on a ring, toys, storage container, use manual/booklet, and itemized kit list.

Training Required:

Self-study digital training with DVDs and onsite training seminars are available through the test publisher. Additional Training of Trainers Institute Support is available.

Reliability:

Test-Retest:

- 92% agreement between parents' first and second administrations of the ASQ-3, with a 2-week delay.[1]

- **Excellent** (ICC= .75 - .82)[1]

Interrater / Intrarater:

- 93% agreement between parents and trained examiners.[1]
- **Adequate:** (ICC= .43-.69)[1]

Internal Consistency:

- **Poor to Excellent**: (Cronbach's Alpha = .51-.87 for age intervals from 2-60 months across five domains)[1]

Considerations:

- Available from publisher in English, Spanish and French; previous versions available in Korean.

- Culturally validated and published in: Spanish, Arabic, Persian, French, Korean, Chinese, Portuguese, Hindi, Dutch, Thai, Norwegian, Turkish, and Afrikaans.

- Used in many countries and cultural groups: Chile, Brazil, Canada, Lebanon, Spain, United Kingdom, United States, Colombia, Australia, Aboriginal communities, and Canadian Nation/Mohawk communities.

- Validity decreased from original validation in US when translated for use in another country.

Cut-off Criteria:

	r	ICC
Excellent	≥ 0.6	≥ 0.75
Adequate	0.31-0.59	0.40-0.74
Poor	≤ 0.3	< 0.4

Purpose and Administration Instructions:

- The ASQ-3 is a system of 21 age-specific developmental questionnaires that are designed to evaluate five domains of child development, including: 1) gross motor, 2) fine motor, 3) communication, 4) problem solving, and 5) personal-social.

- Screener to identify children who may be at risk for development delays and with children who are developing typically.

- Age intervals include: 2, 4, 6, 8, 9, 10, 12, 14, 16, 18, 20, 22, 24, 27, 30, 33, 36, 42, 48, 54, and 60 months.

- Questionnaire-specific instructions are included on each form; respondent is asked to consider a range of questions regarding the child's ability to perform a range of developmentally-appropriate tasks and indicate responses on the form.

- Scores calculated by summing individual item responses for each domain (Yes= 10, Sometimes= 5, and Not Yet=0).

Validity[1,2]

Content:

- Parents, clinical practitioners, and experts were involved in the development of the ASQ-3.

Predictive / Sensitivity:

- The ASQ-3 correctly identified 85.9% of children ages 27-36 months at risk for developmental delay.

- The ASQ-3 correctly identified 82.5% of children ages 42-60 months at risk for developmental delay.

Discriminant / Specificity:

- The ASQ-3 correctly identified 85.7% of children ages 27-36 months not at risk for developmental delay.

- The ASQ-3 correctly identified 92.1% of children ages 42-60 months not at risk for developmental delay.

Normative Data[8]	**Participant Group**	
	DCD	**TD**
Domains	**Mean (SD)**	**Mean (SD)**
Overall Motor	95.5 (16.2)	106.7 (14.7)
Gross Motor	49.5 (11.5)	55.4 (7.8)
Fine Motor	46.1 (11.3)	51.3 (10.4)

DCD = Developmental Coordination Disorder
TD= Typically Developing
Months 42, 48, 54, and 60