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REVIEW ARTICLE

Ages and Stages Questionnaire: a global screening scale

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Abstract With standardized screening tools, research studies have shown that developmental disabilities can be detected reliably and with validity in children as young as 4 months of age by using the instruments such as the Ages and Stages Questionnaire.

In this review, we will focus on one tool, the Ages and Stages Questionnaire, to illustrate the usefulness of developmental screening across the globe.

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Ages and Stages Questionnaire: una escala de evaluación global

Resumen Mediante el uso de herramientas de evaluación estandarizada, algunos estudios de investigación han demostrado que discapacidades de desarrollo se pueden detectar con fiabilidad y validez en niños desde los 4 meses de edad mediante el uso de los instrumentos estandarizados como el *Ages and Stages Questionnaire* (Cuestionario de las Edades y Etapas).

Para ilustrar la utilidad de la evaluación del desarrollo infantil a escala global, en este trabajo se revisará la herramienta *Ages and Stages Questionnaire*.

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1. Introduction

Early childhood is a critical period because the first five years of life are fundamentally important, and early experiences provide the base for brain development and functioning throughout life.^{1,2} Early intervention services can provide educational and therapeutic services to children who are at risk.^{2,3} Early identification of developmental disabilities is essential for timely remedial intervention and leads to early treatment and ultimately improved long-term outcomes.⁴⁻⁶ It has been estimated that only about half of the children with developmental problems are detected before they begin school.⁷⁻⁹ Early intervention for children with developmental delay is crucial for enhancing their outcomes.^{10,11} To meet the needs of children during the most important phase of their growth, many countries have established programs and facilities designed to mitigate disabilities.¹² Early intervention (EI) and early childhood special education (ECSE) serve a growing number of young children with developmental delays and their families.¹³⁻¹⁷ It has been shown that high-quality EI and ECSE improve children's developmental outcomes.¹⁸⁻²⁰

2. Developmental screening

Optimal development and early identification and detection of delays rely on developmental screening.^{19,21} To emphasize the importance of developmental screening in early childhood, the American Academy of Pediatrics (AAP) developmental screening policy has included the following strong statement: "Early identification of developmental disorders is critical to the well-being of children and their families."^{22,23} Developmental screening can be thought of as a preliminary step in the identification of risk at school-age children.²⁴ An effective screening tool should be inexpensive, simple, accurate, valid, reliable, culturally appropriate, easy, and quick to administer.²⁵⁻²⁷ To be eligible for Individuals with Disabilities Education Act (IDEA) services, children must qualify in terms of impairment or delay. Approximately 10 to 20% of young children will experience delays²⁸⁻³⁰ with significantly higher rates among children who live in poverty.^{31,32} It has been estimated that only about half of the children with developmental problems are detected before they join the school.³³⁻³⁵ Developmental screening and developmental surveillance constitute ongoing processes of monitoring the status of a child by gathering information about his development from multiple sources, including skillful direct observation from parents/caregivers and relevant professionals.^{26,36,37} The AAP and the British Joint Working Party on Child Health Services recommend developmental surveillance as an effective means to identify children with developmental delay.³⁸ Parents' reports of current attainment of developmental tasks have been shown to be accurate and reliable.^{39,40} In keeping with recommendations from the American Pediatric Association (USA), National Screening Committee (NSC) UK: Child Health Sub-Group Report 1999 and Best Health for Children (Ireland) consideration should be given to the use of parental reports as a part of the process of assessment.

The AAP⁴¹ policy statement set forth screening algorithms and methods, including those that use standardized

parent-completed tools, such as the Parental Evaluation of Developmental Status (PEDS),^{39,40} the Ages and Stages Questionnaire (ASQ),⁴² and the Child Development Inventories (CDI).⁴³ These have the benefit of good psychometric properties (70-80% specificities and sensitivities), and require much less time than direct developmental assessment by a professional. A parent-completed screening questionnaire can decrease costs and increase accuracy, and parents can report successfully at regular intervals.^{19,44,45}

Developmental screening identifies those who are in need of further evaluation for eligibility for specialized services.⁴⁶⁻⁴⁸ Eligibility assessment assists in identifying the nature of the delay and connecting children and families to appropriate services and supports. Several screening tests have been recommended for accurate ongoing developmental screening, including the PEDS, CDI, ASQ. The ASQ will be highlighted in the review as a preferred screening test that works well in a variety of screening settings.

3. Ages and Stages Questionnaire

The Ages and Stages Questionnaire (ASQ) is a parent-completed questionnaire that may be used as a general developmental screening tool. The ASQ was designed and developed by J. Squires and D. Bricker^{42,49,50} at the University of Oregon and can be completed by parents in 12-18 minutes. The ASQ-3 is a parent reported initial level developmental screening instrument consisting of 21 intervals, each with 30 items in five areas: (i) personal social, (ii) gross motor, (iii) fine motor, (iv) problem solving, and (v) communication for children from 2-66 months. In most cases, these questionnaires accurately identify young children who are in need of further evaluation to determine if they are eligible for early intervention services.^{42,50} The ASQ is cost-effective and widely used in the United States and other countries.⁵¹⁻⁵³ The ASQ has been translated into several languages, such as Spanish, French, Dutch, Chinese, Norwegian, Hindi, Persian, and Turkish. Furthermore, the number of international studies on its psychometric properties with diverse cultural environments is increasing (e. g., Australia, Brazil, Canada, Chile, China, Denmark, Ecuador, France, Ghana, India, Iran, Korea, Lebanon, Netherland, Norway, Republic of Macedonia, Spain, Taiwan, Thailand, Turkey). It has excellent psychometric properties, test-retest reliability of 92%, sensitivity of 87.4% and specificity of 95.7%. Validity has been examined across different cultures and communities across the world.⁵¹⁻⁵⁴ The ASQ-3 is designed to be an in-depth general screening instrument with a reading level from fourth to eighth grade and illustrations assist in providing a clear, user-friendly format. The ASQ is available in several languages, including Turkish, Norwegian, Dutch, Persian, Arabic, English, Hindi, French, Thai, Korean, Spanish, Chinese, and Vietnamese. Another advantage of the ASQ is its flexibility. Evidence has shown that the ASQ is very useful in a wide variety of settings: home, doctors' office, head starts, early intervention units, preschools, early childhood, health clinics, and teen parenting programs. The ASQ can be completed by parents/caregivers independently or with the assistance of professionals or administered by a trained professional who

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