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"Survey of Wellbeing of Young Children (SWYC)": how does it fit for screening developmental delay in Brazilian children aged 4 to 58 months?

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ABSTRACT

Objective: To replicate the original normative study of the SWYC's Milestones Questionnaires for children in Brazil. Our goals were to compare the performance of Brazilian and North American children using this screening tool and to verify the reliability and validity of the Brazilian version.
Study design and setting: Cross-sectional study with children aged 1–65 months and their guardians, recruited in southern Brazil. Parents were interviewed using the Developmental Milestones questionnaire, which contains 10 questions about cognitive, motor, social, and language abilities. Item response theory was used to examine item validity.
Results: We interviewed 415 parents. SWYC provided the most information on the children's development between 10 and 30 months. The performance of Brazilian and North American children was quite similar when children are younger than 36 months old. Above 36 months, North American children performed almost all items earlier than Brazilians. Convergent validity was 0.73 and internal consistency 0.97.
Conclusion: The Brazilian version of the Developmental Milestones questionnaire presented acceptable measurement qualities that support the SWYĆs potential as a developmental screening tool. As we found important differences between North American and Brazilian children in achieving the milestones, especially among the oldest children, additional normative studies are needed.

What is new?

This pilot study analyzed the Brazilian version of a questionnaire (Survey of Wellbeing of Young Childre – SWYC) designed to screen developmental delay in children aged 0–5 years. The SWYC is simple, easy to apply and interpret, free of charge, and can be used on a large scale in primary care in Brazil.

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Key findings

The Brazilian version of the Developmental Milestones questionnaire presented acceptable measurement qualities that support the SWYĆs potential as a developmental screening tool. We found important differences between the North American original sample and the Brazilian one in achieving the milestones, especially among the oldest children, indicating the need to invest in developing local norms.

Implications

The use of developmental screening instruments in primary health care can contribute to Brazilian population-based studies and subsidize the implementation of child health care policies. However, this was a pilot study, and additional research is needed to better understand whether these results reveal a sociocultural pattern or are related to methodological issues.

1. Introduction

Developmental delays occur when a child does not show the expected motor, language, socioemotional, and cognitive abilities that are required for achieving a range of personal and social competencies in his/her individual life (Dosman, Andrews, & Goulden, 2012). Data based on the prevalence of children under 5 years of age stunted and living in extreme poverty estimates that about 219 million children in low- and middle-income countries, meaning 18% of children from Latin America and the Caribbean Region, are at risk of not reaching their potential development (Black et al., 2017). In an attempt to promote healthy development and recognize children with delays as early as possible, the American Academy of Pediatrics recommends constant surveillance of a child's development (Dosman et al., 2012; Hagan, Shaw, & Duncan, 2017; Sheldrick, Merchant, & Perrin, 2011). This monitoring consists of observing the child carefully, the use of a detailed anamnesis that values the parents' concerns, and physical examinations conducted by health care professionals familiar with the child's development(Dosman et al., 2012; Hagan et al., 2017).

Developmental surveillance without the use of appropriate screening instruments fails however to identify a great number of children with developmental problems(Aly, Taj, & Ibrahim, 2010; Fernald, Prado, Kariger, & Raikes, 2017). Standardized screening instruments are widely recommended, because, in general, they are compact and because there is scientific evidence of their potential to detect delays, aiding in the identification of children who need diagnostic assessment. Screening tests can identify childreńs abnormalities with more accuracy than when decisions are based solely on professionals' clinical judgment (Aly et al., 2010). A systematic review indicates that less than half of the patients with developmental and behavioral problems are identified only by a pediatricians' clinical assessment (Sheldrick et al., 2011). Moreover, when compared to diagnostic tests, developmental screening questionnaires are more rapid to perform, what enables their large-scale use, such as in public health care (Fernald, Kariger, Engle, & Raikes, 2009; Sabanathan, Wills, & Gladstone, 2015).

It is important, however, to emphasize that the choice and use of screening instruments should be based on their psychometric properties, the existence of normative data for the target population, and the accessibility of tests for professionals, including costs and the need for training (Aly et al., 2010; Sabanathan et al., 2015). When health care professionals use screening instruments with adequate psychometric properties, the detection of suspected delay exceeds 70%, while tests with poor measurement properties or informal checklists only detect 30–40% of children at risk (Glascoe, 2015).

Health professionals in low-and-middle-income countries face difficulties at detecting and diagnosing developmental delays due to the scarcity of instruments validated for their cultures (Black et al., 2017; Madaschi, Mecca, Macedo, & Paula, 2016; Saccani & Valentini, 2012). Considering Brazil, only the "Escala do Desenvolvimento do Comportamento da Criança no primeiro ano de vida" was created and standardized for Brazilian children aged 1–12 months, and its 64 items assess only the motor and communication domains (Pinto, Vilanova, & Vieira, 1997). Madaschi et al. (2016) carried out a cross-cultural adaptation and validity study of the Bayley Scales of Infant and Toddler Development-III (Bayley-III) for Brazilian children from 12 to 42 months (Madaschi et al., 2016). However, despite being an internationally recognized developmental test, the use of the Bayley-III is still not feasible in clinical practice in Brazil because the translation is not available for sale, the test application requires a long time, and professionals must be trained, in addition to the need for an expensive kit with materials.

Although several screening tests widely used internationally, such as the Denver Developmental Screening Test-II (Denver-II), the Ages & Stages Questionnaires, Third edition (ASQ-3), and the Alberta Infant Motor Scale (AIMS), have been translated for clinical use in Brazil, only a few have established performance age norms for Brazilian children. Drachler, Marshall, and Leite (2007) carried out a simple translation of the Denver-II for Brazilian children, without going through the steps of transcultural adaptation, recommending adjustments in the scoring criteria for specific items (Drachler et al., 2007).

Filgueiras et al. (2013) a cross-cultural adaptation of the ASQ-3 protocols, gathering data on 45,000 children from a major city in Brazil. The authors analyzed the psychometric properties of the instrument and reported means and standard deviations by age range and gender for that sample (Filgueiras, Pires, Maissonette, & Landeira-fernandez, 2013). In 2015, the same group published a review of the adaptation process, showing improved psychometric properties. However, they did not publish cut-off points for Brazilian children (Santana, Filgueiras, & Landeira-Fernandez, 2015). Neither the ASQ-3 manual nor the questionnaires are currently available for purchase in Brazilian Portuguese, which makes its clinical use not feasible (Squires & Bricker, 2018).

Only the AIMS has reference curves for the assessment of the gross motor domain in Brazilian children, defining percentiles curves for sex (Gontijo, Magalhães, & Guerra, 2014; Saccani & Valentini, 2012). The majority of screening tests are still being used with the cut-off points of the country of origin. This may lead to the inappropriate classification of delay, as the performance on the test items