

Construction, Standardization and Validation of a Multi-Domain Indian Developmental Inventory (IDI) for Children

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The primary aim of the study was to construct, standardize and validate a multi-domain, culturally sensitive, development inventory for children aged 0 to 8 years. The study was conducted in two parts: construction of the battery and validation. The development of the battery was carried out in three stages: planning, pilot, and standardization. Four hundred and twelve items were included in the battery and were administered to 626 children (across 18 age categories) to standardize the test. The final constructed battery comprised of 378 items. The norms constructed provided standard scores ($M=100$, $SD=15$) reported as development quotients (DQs) at two levels: domain (domain specific DQ) and overall level (Total DQ). The standard scores ranged from 20 to 160. Three types of reliability estimates were calculated: internal consistency, test-retest and inter-rater. The standard errors of measurement (SEM) were computed for five domains. Three types of validity were established including content, construct, and criterion related. The newly constructed Indian Developmental Inventory (IDI) provides child health professionals a culturally sensitive, standardized, multi-domain instrument with excellent psychometric properties and it is hoped that its availability would provide an impetus to the field of developmental assessment in India..

Keywords: Developmental assessment, Test construction, Culturally sensitive, Multi-domain battery

In recent years, screening children who are at risk for developmental delay and intellectual disability has emerged as an important public health challenge for policy makers as early identification is related to better prognosis (Aly, Taj, & Ibrahim, 2010; Bellman, Byrne, & Sege, 2013; Guevara, Gerdes, Localio, Huang, Pinto-Martin, Minkovitz et al. 2013; Poon, La Rosa, & Pai, 2010). Since the early developmental period of the child is highly variable and marked by rapid developmental changes, there are considerable difficulties inherent in assessment of young children. Despite these challenges, detection of developmental delays before five years and timely intervention, particularly during sensitive developmental periods when the brain is most malleable, is imperative for optimal, long-term outcomes (Kolb, 2011; Nair, Mini, Leena, Harikumar Nair, Bhaskaran, & Russell, 2014; Wallander, Bann, Biasini, Goudar, Pasha, Chomba, E., et al., 2014; Walker, Chang, Powell, & Grantham-McGregor, 2005).

A large proportion of children from low income countries, like India, are exposed to multiple risk factors including poverty, malnutrition, neglect and psychosocial deprivation and these factors negatively impact child development and increase the risk for developmental delays (Malhi, Bharti, & Sidhu, 2013; Shonkoff, 2011; Walker, Wachs, Grantham-McGregor, Black, Nelson, Huffman, et al, 2011). Global developmental delay is defined in the DSM-5 as the inability of the child to meet expected developmental milestones in multiple developmental domains including physical, adaptive, social-emotional, cognitive, and communication (American Psychiatric Association, 2013). Despite the urgent need for early detection of these developmental problems, only a handful of indigenously constructed developmental tests are available for use in clinical practice (Bhave, Bhargava, & Kumar, 2010; Nair, George, Philip, Lekshmi, Haran, & Sathy, 1991; Nair, Nair, Mini, Indulekha, Letha, & Russel, 2013; Phatak & Khurana 1991).