



Psychometric properties of the Brazilian-adapted version of the Ages and Stages Questionnaire in public child daycare centers



Alberto Filgueiras^{a,b}, Pedro Pires^{b,c}, Silvia Maissonette^b, J. Landeira-Fernandez^{a,b,d,*}

^a Pontifícia Universidade Católica do Rio de Janeiro, Brazil

^b Instituto Brasileiro de Neuropsicologia e Comportamento, Rio de Janeiro, Brazil

^c Universidade Federal do Rio de Janeiro, Brazil

^d Universidade Estácio de Sá, Brazil

ARTICLE INFO

Article history:

Received 7 March 2012

Received in revised form 3 November 2012

Accepted 12 February 2013

Keywords:

Child development assessment
Ages and Stages Questionnaire
Brazilian public child daycare centers
Classical Test Theory
Item Response Theory

ABSTRACT

Well-designed screening assessment instruments that can evaluate child development in public daycare centers represent an important resource to help improve the quality of these programs, as an early detection method for early developmental delay. The Ages and Stages Questionnaire, 3rd edition (ASQ-3), comprises a series of 21 questionnaires designed to screen developmental performance in the domains of communication, gross motor skills, fine motor skills, problem solving, and personal–social ability in children aged 2 to 66 months. The purpose of the present work was to translate and adapt all of the ASQ-3 questionnaires for use in Brazilian public child daycare centers and to explore their psychometric characteristics with both Classical Test Theory and Rating Scale analyses from the Rasch model family. A total of 18 Ages & Stages Questionnaires – Brazilian translation (ASQ-BR) questionnaires administered at intervals from 6 to 60 months of age were analyzed based on primary caregiver evaluations of 45,640 children distributed in 468 public daycare centers in the city of Rio de Janeiro. The results indicated that most of the ASQ-BR questionnaires had adequate internal consistency. Exploratory factor analyses yielded a one-factor solution for each domain of all of the ASQ-BR questionnaires. The only exception was the personal–social domain in some of the questionnaires. Item Response Theory based on Rating Scale analysis (infit and outfit mean squares statistics) indicated that only 44 of 540 items showed misfit problems. In summary, the ASQ-BR questionnaires are psychometrically sound developmental screening instruments that can be easily administered by primary caregivers.

© 2013 Elsevier Ireland Ltd. All rights reserved.

1. Introduction

Developmental neuroscience research indicates that early life experience can have a major impact on cognitive, emotional, behavioral, and social development later in life [1,2]. Although most of the brain structures in early childhood are already present, they are still extremely immature and thus subjected to a wide range of environmental interactions. These early experiences represent the main underpinning of brain development that determines the strength and function of several neural circuits [3]. Accordingly, social deficits, generally associated with poverty and environmental degradation, might lead to a disruption of normal brain development in children [4].

These findings have important implications for political and economic decisions with regard to public investment in early childhood development programs [5,6]. The efficiency of these programs for low-income families, such as government-funded child daycare centers, is a dynamic

process that depends, among other factors, on continuous evaluation. Assessing the development of children enrolled in public daycare centers represents one aspect of this evaluation process and might contribute to program enhancement and guide policy decisions [7]. The developmental assessment of child daycare centers might also help identify children who might need early intervention. For example, Gleason et al. [8] reported that approximately 10% of children between 1 month and 5 years of age had some kind of serious psychopathology. Moreover, less than 10% of these children were properly identified before they reach school age [9].

Most of the early developmental instruments, such as the Bayley Scales [10], require specialized training and are time-consuming and expensive, which might impose difficulty for a routine examination program in a daycare center. Conversely, some much simpler instruments are less expensive and time-consuming and generally designed to screen for developmental delays. Developmental screening consists of a brief process of evaluating large numbers of children to identify those who might be at high risk for developmental delay and for that reason need further evaluation [11].

The Ages and Stages Questionnaire (ASQ) is a screening instrument used for developmental assessment during the first 5 years of life [12]. The third edition of the ASQ (ASQ-3) comprises a series of 21

* Corresponding author at: Núcleo de Neuropsicologia Clínica e Experimental, Laboratório de Análise de Dados, Departamento de Psicologia, Pontifícia Universidade Católica do Rio de Janeiro, Rua Marquês de São Vicente, 225, Rio de Janeiro, RJ 22453-900, Brazil. Tel.: +55 21 3527 2075; fax: +55 21 3527 1187.

E-mail address: landeira@puc-rio.br (J. Landeira-Fernandez).

questionnaires for infants (2, 4, 6, and 8 months of age), toddlers (9, 10, 12, 14, 16, 18, 20, 22, 24, 27, 30, and 33 months of age), and preschoolers (36, 42, 48, 54, and 60 months of age) designed to screen developmental performance in the domains of communication, gross motor skills, fine motor skills, problem solving, and personal–social skills. Each domain has six items, and each item is scored as “yes” (10 points), “sometimes” (5 points), or “not yet” (0 points) [13].

Several reports indicate that the ASQ has well-established psychometric properties in a clinical context, such as test–retest reliability, internal consistency, criterion validity, sensitivity, and specificity [14–20]. Moreover, the ASQ has been employed as an instrument to assess the impact of Early Head-Start programs and public childcare systems, such as The Florida Infant Mental Health Pilot Program [21], and the five programs developed by the Early Promotion & Intervention Research Consortium [22]. Indeed, the ASQ is the screening instrument that has the most published research in the academic setting [23] and appears to be a reliable instrument to measure infant development in childcare centers [7,24].

The ASQ has been cross-culturally validated in other languages, such as Portuguese from Portugal [25], Spanish [26], French [27], Dutch [17], Norwegian [28,29], Danish [30], Chinese [31], Korean [32], and Hindi [33]. However, the ASQ has not yet been translated into Brazilian Portuguese. Therefore, the main purpose of the present work was to translate all of the ASQ-3 questionnaires into Brazilian Portuguese and explore their psychometric characteristics.

This study was also driven by the need to develop a reliable assessment instrument that might be used to help evaluate Brazilian public child daycare programs and allow the screening of children for possible developmental delays. This is an important issue because almost 18% of Brazilian children between 0 and 5 years old attend public daycare centers [34]. In Rio de Janeiro, 26.5% of all children within this age range specifically attend public childcare centers [34]. For that reason, the present work also sought to adapt the ASQ-3 questionnaires to these public institutions and evaluate whether childcare providers are able to administer these questionnaires.

2. Methods

2.1. Participants

Data from the present study were collected from children enrolled in all of the 468 public daycare centers in the city of Rio de Janeiro. Children in the age range of 4 to 60 months were distributed according to the 20 age intervals defined by the ASQ. The 2 month questionnaire was not used because public child daycare centers only accept children who are older than 4 months. The project was approved by the PUC-Rio Ethical Committee, Rio de Janeiro, Brazil.

2.2. The ASQ-BR

The Brazilian version of the ASQ-3 adapted for public child daycare centers (ASQ-BR) was based on the original ASQ-3 [13]. Initially, each of the 20 questionnaires of the ASQ-3 was translated into Brazilian Portuguese by three independent native Portuguese speakers with professional experience in English–Portuguese translation. Each translated item was then evaluated by a multidisciplinary panel of specialists with a high level of English fluency and different expertise in psychometrics and cross-cultural adaptation instruments, public child daycare systems, child development and education, economics, and public programs for low-income families. The multidisciplinary panel was also allowed to make changes to any of the translated items. The Spanish ASQ-3 [24] was employed to help solve difficulties that emerged during this phase.

Conceptual equivalence, cultural adaptation, and language idiosyncrasies were considered whenever necessary. Although efforts were made to maintain the exact meaning of each item, words

generally used in the United States were modified to better fit the Brazilian context. For example, “inch” was replaced with “centimeter,” “feet” was replaced with “meter,” and “Cheerio” was replaced with “piece of biscuit.” Additionally, Brazilian children do not usually learn their surname until they are 6 years old, so the expression “last name” was replaced with “name of the mother/father.” Item content could also be adjusted to the context of public daycare centers. For example, “feed himself a cracker or a cookie” became “feed himself a fruit” because children who attend public childcare centers are encouraged to eat more fruits and vegetables than industrialized food.

At the end of this phase, a preliminary ASQ-BR version was then back-translated into English by a native American English speaker with high fluency in Brazilian Portuguese. The back-translated ASQ-BR and original ASQ-3 were examined by three native American speakers and the multidisciplinary panel. Only minimal differences were detected, and changes were made when necessary. Afterward, a pilot test was performed with 120 children (six per questionnaire) from different public child daycare centers. Caregivers were responsible for completing the questionnaire with minimal training so problems of understanding and item comprehension could be detected. Comments and suggestions from caregivers were evaluated by the multidisciplinary panel, and a few of the suggestions were incorporated into the final version of the ASQ-BR questionnaires.

2.3. Procedure

All of the directors of the 468 public child daycare centers were invited to participate in a 1-day, 8-hour meeting previously scheduled by the Education Secretary of the city of Rio de Janeiro. Each meeting had approximately 30 daycare directors, and the 20 ASQ-BR questionnaires were presented by a person previously trained in the ASQ-BR by a member of the multidisciplinary panel. All of the directors were responsible for taking the ASQ-BR questionnaires to their daycare centers so each child could be evaluated by the daycare caregivers. Brazilian public child daycare center typically have several classrooms, each containing approximately 30 children. The daycare director presented the ASQ-BR to the caregivers who were responsible for a classroom with children within the ASQ-BR age range. The caregivers, in turn, were responsible for administering the ASQ-BR to the children in their classrooms. Afterward, the caregivers or directors entered the child ASQ-BR data into a website using a computer located in the daycare center. Data collection occurred between October 12 and December 17, 2010.

2.4. Statistical analyses

Descriptive statistics were employed to characterize the study population and performance of all age intervals in each of the ASQ-BR domains. Cronbach's alpha [35] and item-total correlation coefficients were employed to evaluate the internal consistency of the six items in each domain of the ASQ-BR questionnaires. A Cronbach's alpha equal to or greater than 0.65 [36] and an item-total correlation equal to or greater than 0.3 [37] are considered satisfactory.

Exploratory factor analysis (EFA) was employed to evaluate the unidimensionality of each of the five domains across the different age intervals. Factors were extracted through principal axis factoring because this is the preferable method for factor extraction when employed in an exploratory manner [38]. Factor rotation was performed using the oblique method (Promax, $K = 4$) because of the likelihood of considerable conceptual correlation among the factors. Velicer's minimum average partial [39] and parallel [40] analyses were employed to determine the number of factors. Both of these procedures were performed using SPSS syntax developed by O'Connor [41].

The unidimensionality of each domain was expected to be found in the Confirmatory Factor Analysis (CFA) and EFA. An invariance assessment was conducted using Multiple-Group Factor Analysis (MGFA), which is part of the CFA family [42]. The MGFA was performed for each

Download English Version:

<https://daneshyari.com/en/article/6171881>

Download Persian Version:

<https://daneshyari.com/article/6171881>

[Daneshyari.com](https://daneshyari.com)