

Development of a Computerized Adaptive Test (CAT) for the Activities and Participation Rating Scale (APRS) in Singapore

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KEY IMPLICATIONS

- The current study provided preliminary construct validity of the Activities and Participation Rating Scale (APRS)-Primary and the utility of the computerized adaptive test (CAT)-APRS-Primary in assessing adaptive skills among Singaporean children aged seven to 12 years.
- The application of CAT methodology shows the promise in substantially reducing the response burden for respondents while not losing precision in ability estimation.

BACKGROUND

Adaptive behaviour is the effectiveness and degree to which a person meets the requirements of personal independence and social responsibilities. Culturally bounded in nature, adaptive behaviour is regarded as one of the indispensable criteria for the diagnosis of intellectual disability, and has the utility of guiding educational or intervention planning.

Over the years, more than 200 adaptive behaviour measures have been developed (Balboni, 2014). However, these measures were developed mainly in Western countries such

as the United States and United Kingdom. A paucity of measures of adaptive behaviour that are developed in less mainstream countries can be a barrier to research and practice related to adaptive behaviour in these countries (e.g., Singapore).

In addition, typically the time required for the completion of these measures can range from 20 to 60 minutes, which may result in participation burden on the respondents (e.g. parents, caregivers, teachers). One approach to address the response burden is to develop a CAT version of the adaptive behaviour measure.

FOCUS OF STUDY

To address the above two concerns, this study aimed to develop a CAT of a culturally appropriate adaptive behavior measure, the APRS (Poon, 2011), which was originally developed and piloted among 20 adolescents with autism spectrum disorders (ASD). In this study, we developed an item bank based on the content structure of the APRS but focused on primary school children, aged 7 to 12 years old (i.e., APRS-Primary), and then developed a CAT for this new tool (i.e., CAT-APRS-Primary).

KEY FINDINGS

Caregivers provided generally positive feedback for the items of the item bank developed for the CAT-APRS-Primary. Items for the CAT-APRS-Primary fit a unidimensional Rasch model, indicating that these items have a common latent construct of adaptive behaviour. Preliminary utility of the CAT-APRS-Primary was established, with participants completing 24 items on average.

SIGNIFICANCE OF FINDINGS

Implications for policy and research

This study exemplified the development of an item pool for developing a CAT. This study also suggests the need to consider developing smarter psychological assessment tools with cultural appropriateness.

Proposed follow-up activities

More psychometric work would be needed prior to a wider use of the CAT-APRS-Primary. This includes, but may not be limited to, test-retest reliability, inter-rater reliability, diagnostic validity for different clinical groups, and criterion-related validity with other well-established tools.

POPULATION

In Study 1, an item bank was piloted among 56 caregivers. In Study 2 the refined items were calibrated among 352 caregivers. Upon the development of the CAT-APRS-Primary, we followed up with the 352 caregivers who indicated their willingness to participate in the CAT piloting study. A total of 110 caregivers completed the CAT-APRS-Primary.

RESEARCH DESIGN

The study adopted a survey design.

REFERENCES

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