

The Cross-Cultural Validity and Reliability of the Vietnamese Version of the Pediatric Evaluation of Disability Inventory

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Introduction & Rationale

- Limited culturally appropriate standardized assessment tools that fully assess the capacities of Vietnamese children
- Impacts the ability to tailor interventions to a child's specific needs to maximize a child's overall potential.

Pediatric Evaluation of Disability Inventory (PEDI)

Assessment that examines a child's functional capabilities, the level of independence, and the extent of modifications required to perform functional activities in **three domains**:

- Self- care
- Mobility
- Social function

***Culturally adapted and translated into 25 different languages**

Pediatric Evaluation of Disability Inventory (PEDI)

Functional Skills Scale (FSS)

- Child's performance across these domains (197 items) with dichotomous scoring (unable/capable to perform the task).

The Caregiver Assistance Scale (CAS)

- Level of caregiver support across the same three domains with 20 items using a Likert scale (0 = total assistance required; 5 = independent)

The PEDI is administered through either direct observation by a healthcare provider or caregiver report



Aims

- Translate and culturally adapt the PEDI for use with Vietnamese children and their families
- Investigate the reliability and validity of the new Vietnamese PEDI (vPEDI)
- Explore the distribution of scores across normative age groups of typically developing Vietnamese children, 6 months to 7.5 years.

Methods

- Ethical Approval: University of Medicine and Pharmacy at Ho Chi Minh City
- **Participants:** Typically developing children ages 6 months to 7.5 years old without disability or delayed development & caregivers
 - Recruited from three regions of Vietnam (Northern, Central & Southern)



Methods

Participants:

- 446 typically developing Vietnamese children
- 198 girls and 248 boys; 6 months to 7.5 years
 - Minimum of 23 children per each 6-month age subgroup
- Sample size was determined in accordance with the COSMIN & priori power analysis based on prior studies

Methods

Protocol for Linguistic Translation and Cross- Cultural Validity

- Translation into Vietnamese and then back translation to English
- 1st panel of Vietnamese pediatric rehabilitation experts assessed quality, clarity & relevance
- 2nd panel of Vietnamese pediatric rehabilitation experts assessed the content validity using a 4-point Likert scale
(1 = not relevant/clear to 4 = highly relevant/clear)

Face validity

- Convenience sample of 32 Vietnamese caregivers of typically developing children
- 5-point Likert scale; 5= easy to understand

Methods


- **Test–retest reliability**
 - *Assessed **50 children** on two separate occasions, with a 2- week interval between the assessments
- **Distribution of Scores Across Normative Age Groups Investigation**
 - 446 typically developing Vietnamese children
 - *50 participants assessed for test–retest reliability
 - **Minimum of 23 children in each 6-month age sub-group**
(i.e., 6-mths to 12-mths, 12-mths to 18 mths)

Data Analysis

- **Content and face validity**
 - **Item-level** (I-CVI) and **scale-level** (S-CVI/UA, S-CVI/Ave) content validity indices
 - Face validity was assessed via caregiver ratings of ease of understanding
- **Reliability**
 - Test–retest intraclass correlation coefficients (ICC)
- **Agreement and measurement bias**
 - Bland–Altman plots to examine limits of agreement & bias between examiners
- **Descriptive statistics**
 - Calculated on the raw score of each age group for each scale

Cross Cultural Translation



Domain	Item	The PEDI	The Vietnamese PEDI 
Self-care	A. Food texture	2. Eats ground/lumpy food	2. Thức ăn xay— minced food
	B. Use of utensils	9. Use a knife to butter bread, cut soft food	9. Sử dụng đũa— use chopstick
	I. Pullover/front-opening garments	42. Puts on and remove front-opening shirts, not including fasteners	42. Mặc và cởi áo mở ở phía trước, không có khuy , khóa—Puts on and remove front-opening shirts, not include BUTTONS /fasteners
		43. Put on and remove front-opening shirts, including fasteners	43. Mặc và cởi áo mở ở phía trước, có khuy , khóa—puts on and remove front-opening shirts, include BUTTONS /fasteners
Mobility	C. Car transfers	C. Car transfers	C. Di chuyển vào và ra xe hơi/taxi/xe máy C. Car/ taxi/motorbike transfers
	E. Tub transfers	E. Tub transfers	E. Chuyển thể trong bồn tắm/vòi sen/chậu tắm E. Tub/ shower/tub bath transfers

****Excellent content validity (I-CVI >0.80; S-CVI/Ave >0.90)**

Test-Retest Reliability for Functional Skills and Caregiver Assistance Scales

PEDI domains	ICC	95% CI
FSS		
Self-care	0.982*	0.961–0.991
Mobility	0.994*	0.990–0.997
Social function	0.983*	0.965–0.991
CAS		
Self-care	0.945*	0.877–0.973
Mobility	0.952*	0.916–0.972
Social function	0.932*	0.884–0.961

Abbreviations: CAS = Caregiver Assistance Scale, CI = confident interval, FSS = Functional Skill Scale, ICC = intraclass correlation coefficient.

* $p < 0.0001$.

**Bland–Altman analysis indicated a low risk of systematic bias between the two administrations*



Discussion

Stephen M. Haley, Ph.D., P.T., Wendy J. Coster, Ph.D., OTR/L, Larry H. Ludlow, Ph.D., Jane T. Haltiwanger, M.A., Ed.M., Peter J. Andrellos, Ph.D.

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- **vPEDI is valid and reliable for Vietnamese children**
 - Authors assured the vPEDI included activities that occur routinely in the Vietnamese culture and avoided the use of complex medical terminologies.
 - Integration of culturally relevant activities further enhances vPEDI's **strong face validity** and supports rehabilitation specialists' ability to accurately relate the assessment results to essential life activities in Vietnam.

Discussion

Minor differences between the scores of Vietnamese children and the normal values distribution throughout age groups *vs Western counterparts*

Differences may reflect unique caregiving practices (i.e., feeding and eating, sleep positions, bathing, grooming, and play) in the Vietnamese culture

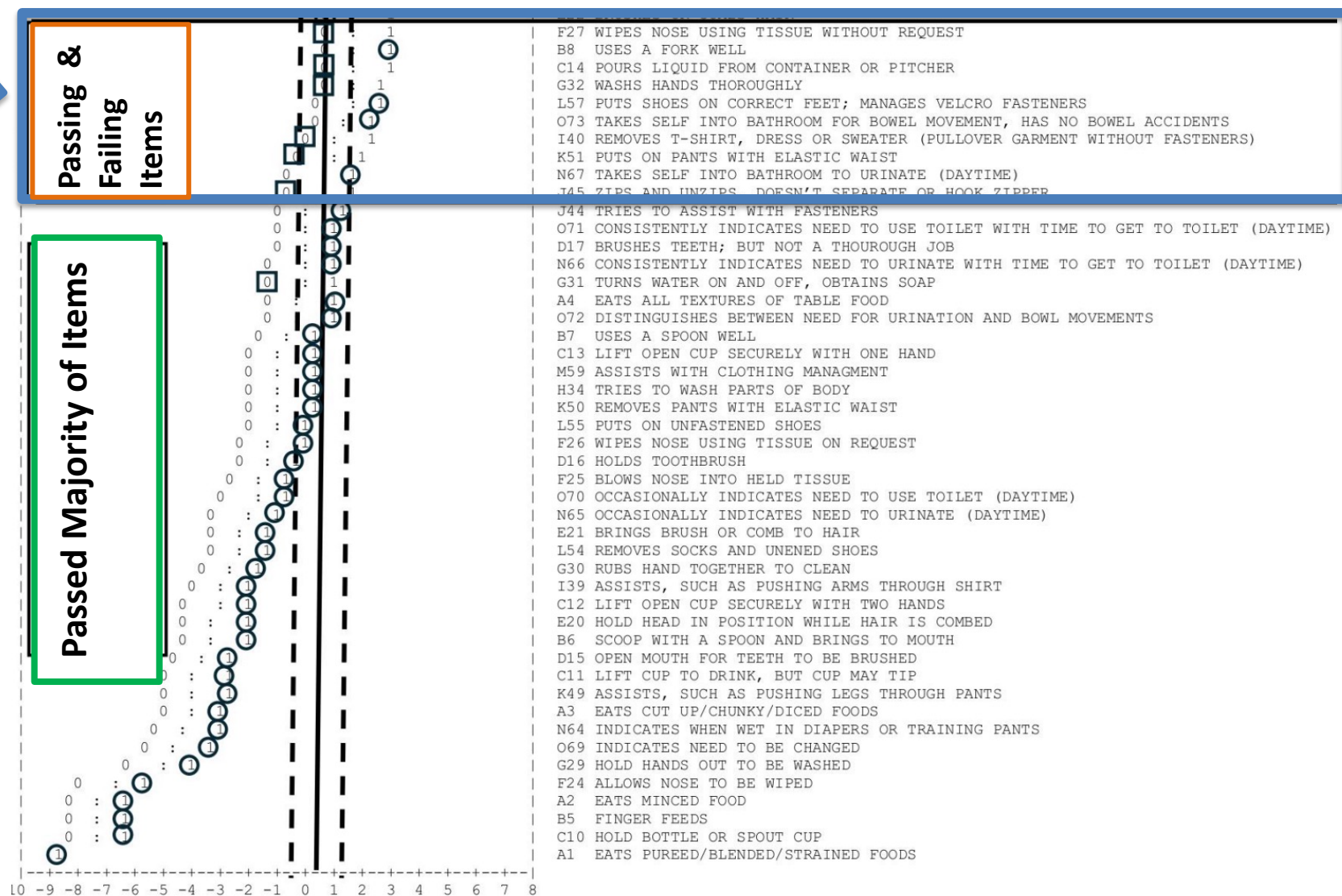


Conclusion & Future Directions

Completed Rasch item analysis with difficulty estimates to examine the **item hierarchy** (*easy to difficulty*) and stability of the vPEDI.

Keyform map displays a child's ability compared to the items on the assessment

*Emerging skills - focus of OT goals & intervention



Conclusion & Future Directions

- **Validated vPEDI** could be used in both clinical practice and research to evaluate children throughout Vietnam
- It will be important to **train current and future Vietnamese practitioners** about the vPEDI to enhance the relevance and applicability of this study's findings.

(Ngygen, et al., 2025)



Vietnamese PEDI



Mahalo Nui Loa!

References

