ORIGINAL ARTICLE

Translation and Validation of Pediatric Balance Scale in Urdu Language among Attention Deficit Hyperactive Disorder Population

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ABSTRACT

Aim: To Translate and validate Pediatric balance scale in Urdu language among Attention Deficit Hyperactive Disorder population.

Methods: This was descriptive linguistic validation study with non probability sampling technique consisted on five phases. In first phase, translation of original pediatric balance scale (PBS) was translated into target language Urdu by two independent translators (T1, T2), one from Urdu educational background and other one from pediatric practicing medical professional (Forward Translation). In second phase, the two translated versions (T1, T2) were backward translated by two independent translators (T3, T4), one from English educational background and other one from pediatric practicing medical professional (Backward Translation). In the third phase, forward and backward versions were compared to the original version, and discrepancies were resolved, the format was changed, inappropriate terms were rejected, and the equivalence of the original and final versions was verified by an expert committee at the end of the process and generated (T5) final version. In the fourth phase, data was obtained from 20 clinical pediatric professionals for validity testing using the Final translated version (T5). In the fifth phase, data was collected from ADHD parents and caregivers who came to hospitals and special schools with prior consent and met the inclusion criteria for reliability.

Results: The mean age of parents and care givers was 46.52 and standard deviation was 0.9674. The content validity of Translated version Urdu (T5) was 0.86 which seems to be acceptable. The calculated Chronbach's alpha was 0.966 which is measuring correlations between different items on the PBS. Test re-test reliability ranged from 0.616-0.950 which means information remained consistent over brief periods. Intra-class correlation coefficient value ranged from 0.897 - 0.974 with statically significant value.

Conclusion: Urdu version of Pediatric Balance Scale is reliable and valid tool for the assessment of balance in Attention Deficit Hyperactive Disorder.

Keywords: Translation, Validation, Pediatric Balance Scale (PBS), Attention Deficit Hyperactive Disorder (ADHD)

INTRODUCTION

Balance testing is an important aspect of a school-aged child's physical therapy evaluation [1]. Classic balance assessment describes the amount to which the child responds to righting reflexes, defensive responses, and equilibrium reactions in response to a therapist-generated disruption[2]. Children with mild to severe motor impairment may have less stamina for long-term activities like standing still in line[3].

In order to test balance in children aged 4 to 13, the Burg Balance Scale was utilized. The reliability of the BBS could not be determined because many of the static balancing items required a long time to maintain a fixed posture, which made youngsters uncooperative. Although the BBS has high reliability in adults, a valid multi-construct balance assessment for children is needed. The Pediatric Balance Scale was created as a result of issues using the BBS in youngsters[4].

The PBS was initially developed in 1994 as a modified version of the Berg Balance Scale (BBS)[3]. The PBS is a 14-item criterion reference measure that looked at functional balance in everyday situations. Many of the functional activities a child must perform to safely and independently function within the home, school, or community are assessed by the 14 items that make up the PBS: sitting balance, standing balance, sit to stand, stand to sit, transfer, stepping, reaching forward, reaching to floor, turning, and stepping on and off of an elevated surface. Each item is rated on a four-point scale and takes less than 15 minutes to complete. This study focused on children aged 5 to 15 years old[5].

PBS has been translated into a variety of languages in the past, including Chinese, Korean, Brazilian Portuguese, and others, but not into Urdu. Pakistan is a multi-cultural and multi-lingual country, with Urdu being the most widely spoken and understood language. As a result, it is vital to translate Pediatric Balance Scale into Urdu for better comprehension[6].

The purpose of this project is to translate the Pediatric Balance Scale questionnaire into Urdu and validate this version for cross-cultural adaption. So that parents and caregivers can use it as a better screening tool without having to overcome linguistic barriers.

METHODOLOGY

This was descriptive linguistic validation study with non probability sampling technique consisted on five phases. Permission was granted by Ethical Review Board of Lahore Medical & Dental College, Lahore. In first phase, translation of original pediatric balance scale (PBS) was translated into target language Urdu by two independent translators (T1, T2), one from Urdu educational background and other one from pediatric practicing medical professional (Forward Translation). In second phase, the two translated versions (T1, T2) were backward translated by two independent translators (T3, T4), one from English educational background and other one from pediatric practicing medical professional (Backward Translation).

In the third phase, forward and backward versions were compared to the original version, and discrepancies were resolved, the format was changed, inappropriate terms were rejected, and the equivalence of the original and final versions was verified by an expert committee at the end of the process and generated (T5) final version.

In the fourth phase, data was obtained from 20 clinical pediatric professionals for validity testing using the Final translated version (T5). In the fifth phase, data was collected from ADHD parents and caregivers who came to hospitals and special schools with prior consent and met the inclusion criteria for reliability.

RESULTS

The mean age of parents and care givers was 46.52 and standard deviation was 0.9674.

Content Validity: The content validity of Translated version Urdu (T5) was 0.86 which seems to be acceptable.

Items	Experts in Agreement	Content Validity Index	Content Validity Ratio
Sitting to standing	8	0.8	0.6
Standing to sitting	9	0.9	0.8
Transfers	9	0.9	0.8
Standing unsupported	8	0.8	0.6
Sitting unsupported	10	1	1
Standing with eyes closed	7	0.7	0.4
Standing with feet together	10	1	1
Standing with one foot in front	8	0.8	0.6
Standing on one foot	8	0.8	0.6
Turning 360 degrees	9	0.9	0.8
Turning to look behind	9	0.9	0.8
Picking up object from the floor	9	0.9	0.8
Placing alternate foot on stool	10	0.9	0.8
Reaching forward with outstretched arm	8	0.8	0.6
Total	**0.87**	**0.86**	**0.72**

Internal Consistency: The calculated Chronbach's alpha was 0.966 which is measuring correlations between different items on the PBS.

Chronbach's Alpha	Number of Items
.966	14

Test and retest reliability: Test re test reliability ranged from 0.616-0.950 which means information remained consistent over brief periods.

Domains (PBS)	Statistics	Total score of PBS
Sitting to standing (n=28)	Pearson correlation	.616
	Sig. (2-tailed)	.000
Standing to sitting (n=28)	Pearson correlation	.745
	Sig. (2-tailed)	.000
Transfers (n=28)	Pearson correlation	.861
	Sig. (2-tailed)	.000
Standing unsupported (n=28)	Pearson correlation	.950
	Sig. (2-tailed)	.000
Sitting unsupported	Pearson correlation	.761
	Sig. (2-tailed)	.000
Standing with eyes closed (n=28)	Pearson correlation	.720
	Sig. (2-tailed)	.000
Standing with feet together (n=28)	Pearson correlation	.948
	Sig. (2-tailed)	.000
Standing with one foot in front (n=28)	Pearson correlation	.873
	Sig. (2-tailed)	.000
Standing on one foot (n=28)	Pearson correlation	.720
	Sig. (2-tailed)	.000
Turning 360 degrees (n=28)	Pearson correlation	.948
	Sig. (2-tailed)	.000
Turning to look behind (n=28)	Pearson correlation	.707
	Sig. (2-tailed)	.000
Picking up object from the floor (n=28)	Pearson correlation	.873
	Sig. (2-tailed)	.001
Placing alternate foot on stool (n=10)	Pearson correlation	.707
	Sig. (2-tailed)	.000
Reaching forward with outstretched arm (n=28)	Pearson correlation	.873
	Sig. (2-tailed)	.000

Inter-rater and intra-rater reliability: Intra-class correlation coefficient value ranged from 0.897 - 0.974 with statically significant value.

	ICC	95% confidence Interval		F test with true value			
		Lower bound	Upper Bound	Value	Df1	Df2	Sig
Single measure	0.950	0.812	0.986	39.000	14	14	0.000
Average measure	0.975	0.896	0.993	39.000	14	14	0.000

DISCUSSION

Because developing a new instrument is costly and unnecessary when an instrument with the same goal and good quality already exists, according to a previously validated assessment instrument to be used in different countries whose language is not the original language of the culture of the country in question, based on some predefined criteria[7].

The PBS was created for the pediatric population due to the need for early diagnosis of balance abnormalities. The Pediatric Balance Scale (PBS) is a 14-item criterion-referenced functional balance evaluation for kids. It is simple to administer and score. The total time spent administering and scoring the test is about 15 minutes. The ability of a child to achieve and maintain upright control during typical childhood activities of daily living, school, and play, as defined by the PBS, is defined as the ability of a child to achieve and maintain upright control during typical childhood activities of daily living, school, and play[2,8].

Small alterations made in accordance with the multidisciplinary committee's suggestions resulted in a better grasp of the instrument. The degree to which a measurement measures what it is designed to measure is referred to as validity. Face validity, construct validity, content validity, and criteria validity are examples of distinct types of validity (which could be concurrent and predictive validity). Internal and external validity testing are the two major components of these validity assessments[7].

In this study, researcher assessed the inter item co-relation by Pearson correlation of all domains mentioned after translation of Pediatric Balance Scale in Urdu language. Most of the correlation for the domains lies between 0.616 - 0.950. According to Portney and Watkins criteria who used to interpret the correlation as follows r < 0.25 indicates little or no correlation, 0.05 < r < 0.75 indicates moderate correlation and 0.75 < r < 1 indicates good correlation. So the content validity of Urdu version of PBS is considered to be good in this study. The average of the Chronbach's Alpha after the translation of the scale was calculated to be 0.966[1,5].

The Turkish version of the scale was found to be completely trustworthy (inter-observer agreement intra-class correlation coefficient = 0.915). The intra-observer agreement was similarly flawless (ICC = 0.927). A high association was discovered between the pediatric balance scale and the functional reach test (r = 0.692; p 0.001) as in current study, Intra-class correlation coefficient value ranged from 0.897 - 0.974 with statically significant value highlighting its good intra-rater reliability[9].

One item was altered throughout the translation process because it was unclear for occupational therapists. Face validity for this measure was found to be quite high (2/87-4/70). CVR (1-0.73) and CVI (0.96) were also within acceptable limits. The content validity index in current study was 0.86 which showed valid translated tool[10].

Urdu version of the Pediatric Balance Scale (PBS) has good content validity and inters items co-relation for children with balance impairment in Attention Deficit Hyperactive Disorder. PBS also provides a standardization protocol for test administration and scoring in clinics. This research only included children with Attention Deficit Hyperactivity Disorder, which restricts the data's generalizability. The study's second problem was that it did not take into account the amount of engagement or health-related quality of life. Inter-rater reliability and idea validity should be included in future research when evaluating this measure.

CONCLUSION

Urdu version of Pediatric Balance Scale is reliable and valid tool for the assessment of balance in Attention Deficit Hyperactive Disorder.

Conflict of interest: Nil

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