

Translation and adaptation of a dysarthria assessment tool to be used in the Sri Lankan clinical context

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Background: Dysarthria is one of the commonest communication disorders that arise due to neuromuscular damage. Diagnosing dysarthria requires careful assessments. In the absence of a formal dysarthria assessment tool in the Sri Lankan (SL) clinical context, the translated and adapted Sinhala Language Newcastle Dysarthria Assessment Tool (SLN-DAT) was validated using a normative sample.

Methods: This research study was conducted in three phases related to 3 objectives using a mixed methodology: (I) Identification of the relevant tool amongst FDA, DP and N-DAT to be adapted and translated to the SL context using views of 20 Speech and Language Therapists (SLTs) and 20 undergraduate final year students; (II) Initial translation and adaptation of assessment tool into Sinhala language based on WHO tool translation guidelines; (III) Face, content and concurrent validity of the tool using 10 subject experts and 50 normative samples of five age ranges (20-40,40-60,60-70,70-80 and 80+). Internal consistency and intra-rater agreement for the tool tasks were analysed by the subject specialists and concurrent validity were assessed comparing the scores of Dysarthria Profile (DP) and SLN-DAT tool. Data was analyzed using SPSS (Statistical Package for Social Sciences) statistical software and the thematic analysis was used for the qualitative part of the study.

Results: N-DAT was selected as the most voted (SLTs=58% & students=55%), and relevant dysarthria assessment tool to be translated and adapted to the SL context. At the end of phase II, the assessment tool contained all related sections of the original N-DAT in Sinhala, which was adapted to suite to SL context. Overall, the SLN-DAT has the same conceptual meaning, semantics, idiomatic and score equivalences as the original version, yet SLT-DAT had one additional section related to ICF model. Statistical analysis showed higher agreement among graders (missing data 0%), including high internal consistency for tool items (Cronbach's $\alpha = 0.8$) including the new sections. Performance of the normative sample exhibited a predicted variation among age and tool performance with negative correlation for articulation $r = -.32$ ($p < 0.05$), respiration $r = -.70$ ($p < 0.01$), phonation voice $r = -.33$ ($p < 0.05$), phonation pitch $r = -.40$ ($p < 0.01$) and DDK rates $r = -.33$ ($p < 0.01$). The concurrent validity of the SLN-DAT was very high for all subsystems. Each subsystem had higher ICC values ranging between $r = 1.0 - 0.7$ ($p < 0.01$).

Conclusion: The translated, adapted and validated formal dysarthria assessment tool; Sinhala Language Newcastle Dysarthria Assessment Tool (SLN-DAT) had higher face validity, higher internal consistency with items and satisfactory concurrent validity. Therefore, the SLN-DAT could be recommended to the SL context after it was validated among the dysarthria population, which will enable to identify dysarthria reliability in the Sri Lankan clinical context.

Key words: *Dysarthria, Formal assessment tool, Impairment and functioning assessing, Sri Lanka, Validity, Reliability*