What's in the Black Box of Rehabilitation? Towards an Intervention Taxonomy: A Mixed-Methods Study Within a Child Neurorehabilitation Service

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BACKGROUND:

Rehabilitation has been likened to a black box: a) due to limited understanding of how rehabilitation promotes recovery; b) interventions are poorly specified (DeJong et al., 2004). This is especially true within child neuropsychological rehabilitation, where guidelines remain underdeveloped. The International Classification of Health Interventions (ICHI) was designed to provide an everyday tool for reporting and analysing health interventions throughout healthcare settings, including rehabilitation (WHO, 2019). ICHI codes are comprised of a simple structure, containing three axes (e.g. Figure 1). These codes sit within four broad domains, based on the intervention target: Interventions on the Environment, Body Systems and Function, Health-related Behaviours and Activities & Participation. In order to provide value as an intervention taxonomy, for use in clinical and research settings, it is paramount that ICHI is both reliable and user-friendly.

AIMS:

To pilot the use of ICHI to code interventions within a child neuropsychology and rehabilitation service and examine the effectiveness of the tool.

METHOD:

The current study utilised a mixed methods design to explore the effectiveness of ICHI for coding paediatric neurorehabilitation interventions. Firstly, an interactive ICHI training course was delivered to two experienced practitioners. Practitioners were then given four weeks to apply ICHI codes to a databank of 200 anonymised paediatric client neurorehabilitation interventions, collated from clinical case notes. Throughout the coding process, practitioners attributed a Likert scale "ease of coding rating" to each intervention, ranging from "very easy" to "very difficult". Secondly, once the practitioners had coded all 200 interventions, semi-structured interviews were conducted to explore practitioners' experiences of using ICHI.

RESULTS:

Ratings for "ease of coding" on a Likert scale had a median score classified as "relatively easy" (Figure 2). Despite this, analysis revealed poor interrater agreement for the generated ICHI codes, k= -0.33 (95% CI, -0.11 to 0.04), p<0.001. Thematic analysis of interview transcripts explored this contradiction in results, revealing three main themes regarding the use of ICHI: Need for Development, Inadequacies, and Value of a Systematic Tool (Figure 3).

CONCLUSION:

Although a classification system will be welcome, the findings suggest that ICHI requires significant expansion and development to accurately represent interventions within paediatric neurorehabilitation.

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Figure 1: Example ICHI code for counselling for mental functions.

ICHI code	**AS1.PP.ZZ**
Target	**AS1** - Mental function
Action	**PP** - Counselling
Means	**ZZ** - Other and unspecified means
ICHI descriptor	**Counselling for mental functions**

Figure 2: Proportion (%) of total ICHI 'Ease of Coding' Ratings attributed by Practitioners, including 95% CI error bars.

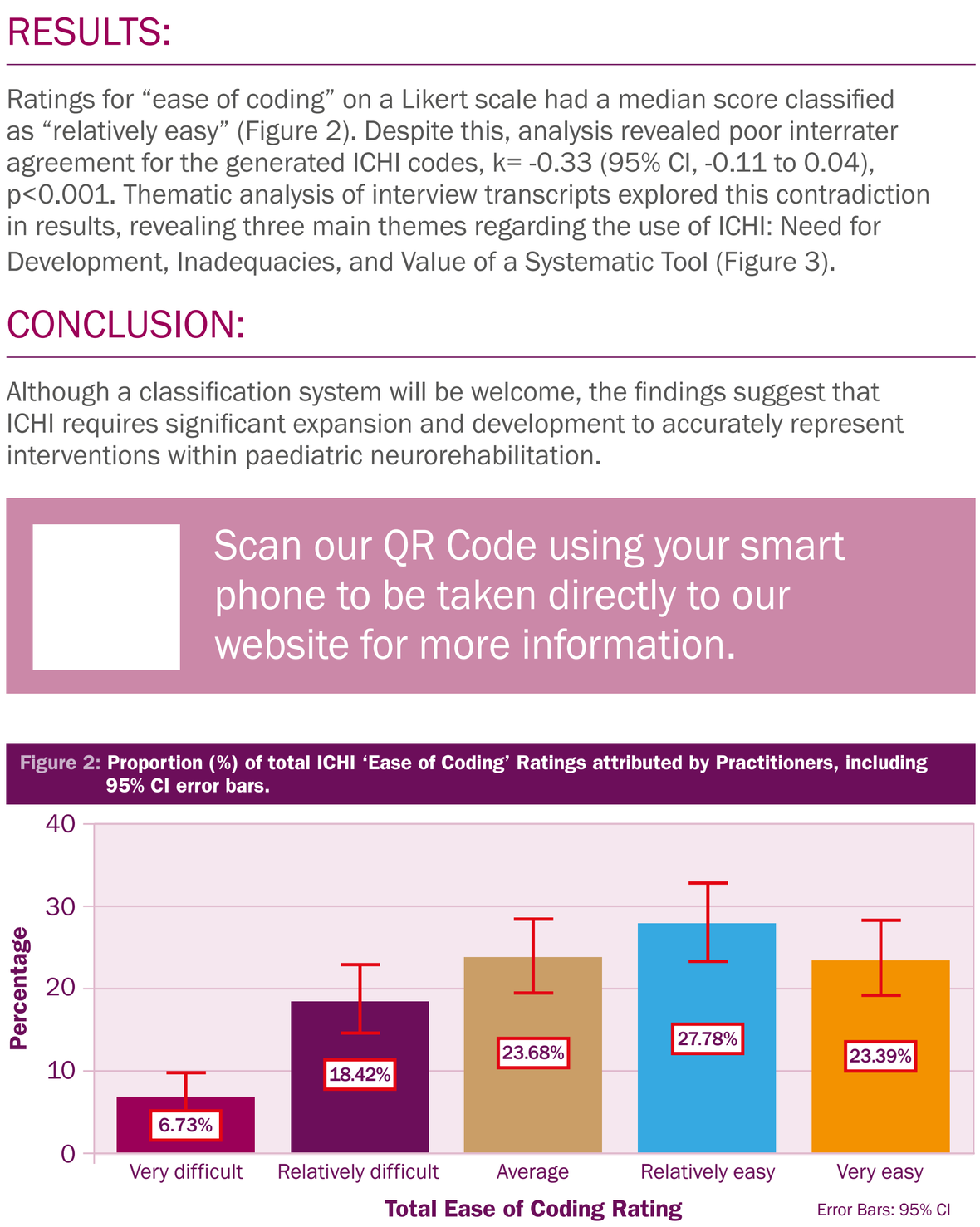
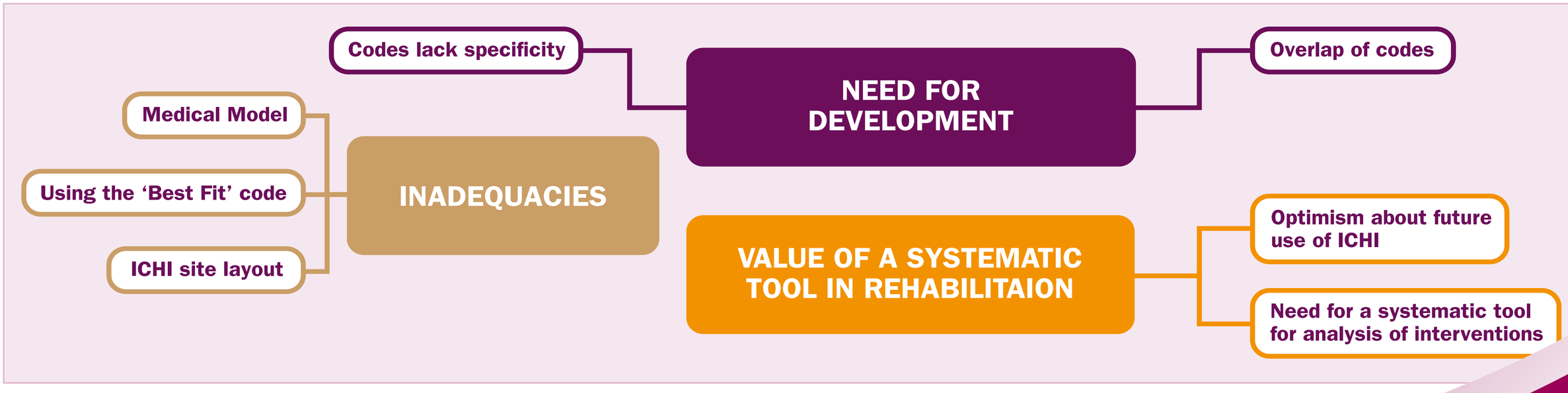


Figure 3: A Thematic Map capturing Practitioner Perceptions of the use of ICHI to code Neuropsychological Interventions



References:

DeJong, G., Horn, S. D., Gassaway, J. A., Slavin, M. D., & Dijkers, M. P. (2004). Toward a taxonomy of rehabilitation interventions: using an inductive approach to examine the "black box" of rehabilitation. *Archives of Physical Medicine and Rehabilitation*, 85(4), 678-686.

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