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American Occupational Therapy Foundation

8. Manuscript Title

Comparing Adaptations of the Coma Recovery Scale-Revised Recovery Ruler Across Three Disorders of Consciousness Programs: A Pre-Implementation Study

9. Abstract (500 words maximum)

Patients who cannot advocate for themselves because they are in a disordered state of consciousness (DoC) following a brain injury rely on family and rehabilitation practitioners to make clinical decisions. Clinical decisions are guided by the patient and family's preferences, the rehabilitation practitioner's clinical reasoning, and evidence which includes assessment result information. The Coma Recovery Scale-Revised (CRS-R) can be used to identify patterns in neurobehavioral recovery and guide treatment planning. Consequently, results are difficult to interpret in-the-moment and communicate with family and the clinical team limiting the exchange of complex clinical data.

Our research process has been informed by the Knowledge to Action framework (Graham et al., 2006). Previous research developed a tool known as the Recovery Ruler (Weaver, 2021). The first iteration of the Recovery Ruler visualizes CRS-R assessment result information so that it is comprehensible and timely and embeds additional content co-created by rehabilitation practitioners and family members of loved ones in DoC. The Knowledge to Action framework guides this phase of our work as we "Adapt Knowledge to the Local Context" (Graham et al., 2006).

The purpose of this study is to examine the differences in Recovery Ruler adaptations generated by rehabilitation practitioners at three DoC programs. We conducted a qualitative study that included two focus groups and usability tests at each DoC program. During the first focus group, we provided background information on the development of the initial Recovery Ruler and asked participants to describe content that needed to be added, removed, or changed. Practitioners conducted usability tests with the initial Recovery Ruler to determine what would be needed to facilitate adoption of the Recovery Ruler to support the Recovery Ruler's integration with the clinical workflow. During the second focus group, we asked participants to provide feedback from their usability tests and provided revisions to the Recovery Ruler for additional feedback. Content analysis identified information that needed to be added, removed, or changed on the Recovery Ruler.

Eleven practitioners participated (Program 1, n=6; Program 2, n=4; Program 3, n=1). Adapting the Recovery Ruler included adding features such as: a textbox to write in test stimuli (Programs 1 & 3) and a column to record the test completion codes (Programs 2 & 3). Adapting the Recovery Ruler included removing features such as: a column for the highest response on each CRS-R item (Programs 1, 2, & 3) and a textbox to write-in the patient's preferred activities (Program 3). Adapting the Recovery Ruler included changing features such as: using dashed not solid lines (Programs 2 & 3) and creating a patient's preferred activities textbox that is not aligned to each CRS-R item (Programs 1 & 2). Each program identified that the visualization of the CRS-R assessment results as the most important element on the Recovery Ruler.

Our user-centered design process to adapt the Recovery Ruler is a necessary first step before implementation. The design process uncovers correctable usability issues and confirms the value of the Recovery Ruler. Future work will evaluate the adoption rate at each DoC program.

10. Key Words (must list at least 1 up to 6 maximum)

- 1 : brain injury
- 2 : implementation research
- 3 : user-centered design
- 4 : Knowledge to action framework
- 5 : knowledge translation
- 6 : health informatics

11. Key Implementation theories or frameworks used in this manuscript

Knowledge to action framework

2. Thank You!

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