Application of the extended technology acceptance model to explore clinician likelihood to use robotics in rehabilitation of the neurologically impaired upper limb.

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Abstract

Rationale, aims and objectives There is a high prevalence of upper limb impairment following a stroke in both the acute and chronic phases of recovery. Evidence suggests that patients do not receive recommended amounts of task specific practice. Robotics provide a potential solution to address this gap but clinical adoption is low. Studies have found that adoption of technology is largely determined by perceived ease of use and perceived usefulness. The aim of this study was to utilise the extended technology acceptance model (TAM2) as a framework to identify factors influencing clinician adoption of a robotic device into clinical practice. Methods Mixed methods study including survey data and focus group discussions across two health services. Participants were allied health professionals whose primary caseload is rehabilitation of the neurologically impaired upper limb. TAM2 surveys were collected pre/post exposure to and use of a robotic device for a period of 3-months. Focus groups were conducted at conclusion of the 3-month period of using the robotic device. Results A total of 34 rehabilitation clinicians completed the pre/post TAM2 surveys. Results indicate that following exposure to the robotic device, there was a statistically significant change in perceived usefulness and perceived ease of use. Two focus groups with 12 participants revealed that lack of experience and protected time to learn how to use such devices were strong moderators of perceived behavioural control. Conclusion This study found that perceived usefulness and perceived ease of use can be moderated through experience. Clinicians reported a need for embedded technological support during the introductory phase of a robotic device in order to acquire the skills for safe and effective use. However, embedded support is rarely offered, suggesting there is a discordance between current implementation of robotic devices into practice and the learning needs of rehabilitation clinicians.

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