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Title	Self-administered aphasia rehabilitation targeting auditory comprehension; exploring feasibility and acceptance of ICT-delivered rehabilitation
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Publication date	2018-08-14
Original Citation	Kearns, Á, Kelly, H. and Pitt, I. (2018) 'Self-administered aphasia rehabilitation targeting auditory comprehension; exploring feasibility and acceptance of ICT-delivered rehabilitation', Aphasiology, 32(Supplement 1), pp. 111-112. doi:10.1080/02687038.2018.1486371
Type of publication	Conference Item
Link to publisher's version	http://slh-events.web.ua.pt/IARC2018/index.php/call-for-abstracts/ - 10.1080/02687038.2018.1486371
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Download date	2026-11-16 07:04:52
Item downloaded from	https://hdl.handle.net/10468/7244



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Coláiste na hOllscoile Corcaigh

Title: Self-administered aphasia rehabilitation targeting auditory comprehension; exploring feasibility and acceptance of ICT delivered rehabilitation

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Abstract:

Background: Speech and language therapy can provide beneficial outcomes in aphasia rehabilitation and intensity is a key component of a successful programme (Brady et al. 2016). Information and Communication Technologies (ICT) offer an option for the delivery of intensive aphasia rehabilitation. A systematic review of 7 randomised controlled trials investigating computer therapy in aphasia rehabilitation (2 of which targeted auditory comprehension) suggests that computer therapy is effective when compared to no therapy and may be as effective as clinician-delivered therapy for specific conditions (Zheng et al. 2016). When considering ICT delivered rehabilitation it is also important to explore the views of people with aphasia (PwA), to understand motivation and engagement with self-administered rehabilitation. There is no consensus measure of user experience in ICT delivered aphasia rehabilitation. Studies have employed semi-structured interviews, usage data and observations to explore feasibility, experience and satisfaction with this mode of therapy (Palmer et al. 2013, Marshall et al. 2013). The NASA Task Load Index (NASA TLX) is a subjective assessment which measures perceived workload of a specific task. It consists of six subscales: Mental, Physical and Temporal Demands, Performance, Effort and Frustration (Hart, 2006). It was originally designed for use in aviation but has also been used in stroke rehabilitation research. A co-design process with PwA was employed to improve accessibility of this assessment.

Aims: To investigate workload, feasibility and acceptance of ICT delivered aphasia rehabilitation for auditory comprehension deficits at sentence level.

Methods & Procedures: A case series experimental two-phase crossover treatment design was employed which compared a self-administered aphasia software rehabilitation programme, targeting auditory language comprehension, with a self-administered sham programme not targeting language. This multiple baseline design included random allocation to phase. Both quantitative and qualitative data was gathered. Repeated cognitive and language assessments, as well as quality of life and control measures were completed at baseline and after each phase. A feedback questionnaire incorporating an aphasia accessible version of the NASA TLX, observations and semi-structured interviews were carried out midway through each phase. This data was analysed and combined to provide insights on workload, feasibility and acceptance. We recruited PwA who were at least 6 months post stroke, presenting with an auditory comprehension deficit and had access to an ICT device and internet. Participants were advised to spent 5 hours per week on each programme over the 6-week duration of each phase.

Outcomes & Results: Five participants from our ongoing study are reported here; age range 32 - 67 years and WAB AQ range 27.4 - 95.2. All participants owned an ICT device. Participants reported higher levels of frustration and mental demands when compared to other subscales on the NASA TLX. In general participants rated their performance as good and expressed satisfaction with both the sham

and therapy programmes. Some identified challenges including internet outage, finding time to complete tasks, and temporary programme bugs. Most worked independently on the programme or with minimal assistance. All recommended the programmes for other PwA. There was divided opinion with respect to computer delivered therapy versus face-to-face therapy, some preferring the former and others favouring a combination of both. Participants enjoyed the autonomy of being able to work at home and saw this as a benefit of the programme.

Conclusion & Implication: ICT delivered aphasia rehabilitation can provide an acceptable mode of rehabilitation for PwA with potential to increased intensity. The decision to introduce ICT as an alternative or an augmentative mode of rehabilitation should be made collaboratively with each individual, taking into account potential challenges and individual perceptions, both positive and negative. Ongoing feedback and monitoring of progress, usage and workload is key to supporting ICT delivered aphasia rehabilitation.

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