

MODULE 3-P1: Technology-assisted post-stroke rehabilitation service and related cost – a scoping review

Tengiz Samkharadze¹, Hsiao-ju Cheng¹, Karen S. G. Chua^{1,2,3}, Olivier Lambercy^{1,4}, Nicole Wenderoth^{1,5}

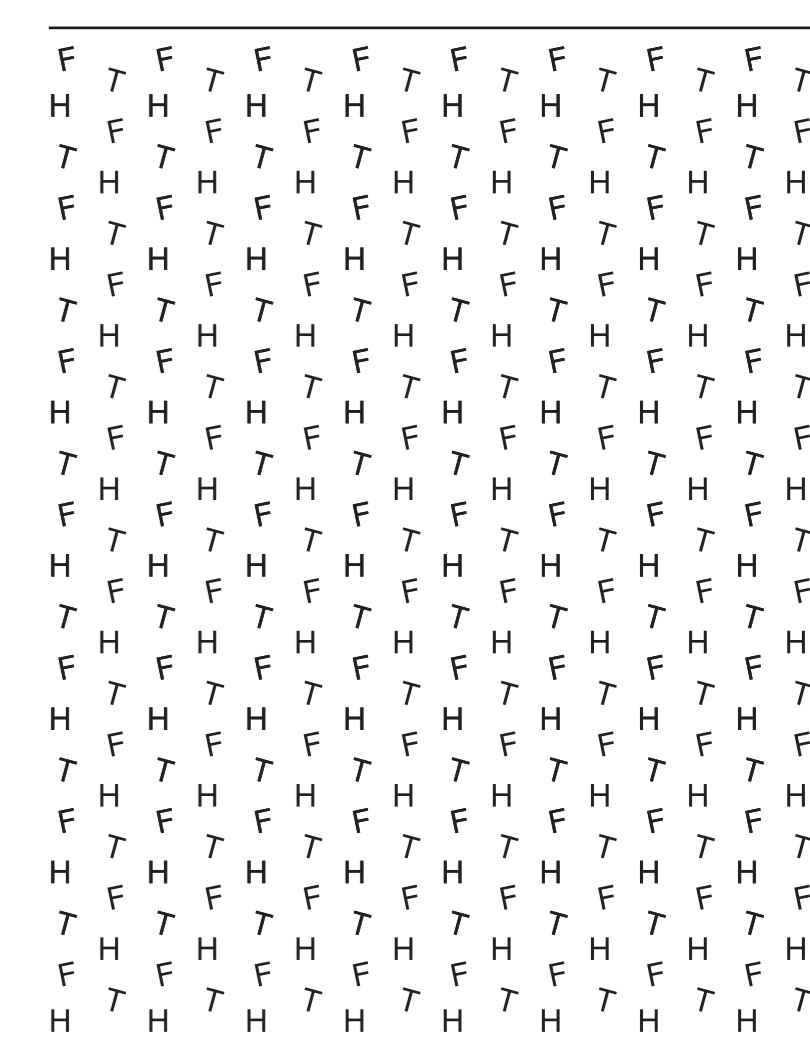
¹ Singapore-ETH Centre, Future Health Technologies, CREATE Campus, Singapore

² Rehabilitation Research Institute, Nanyang Technological University, Singapore

³ Centre of Rehabilitation Excellence, Tan Tock Seng Hospital Rehabilitation Centre, Singapore

⁴ Rehabilitation Engineering Laboratory, Department of Health Sciences and Technology, ETH Zurich, Switzerland

⁵ Neural Control of Movement Laboratory, Department of Health Sciences and Technology, ETH Zurich, Switzerland



1 Introduction

- There is an increased demand for post-stroke rehabilitation service due to the ageing population.
- The shortage of the health care workforce hinders the provision of rehabilitation services in a timely manner.
- Functional, financial and social barriers limit access to continuous rehabilitation.
- Cost-effective technology-assisted post-stroke rehabilitation could be a possible solution.
- There is limited information on the cost-effectiveness of technologies for post-stroke rehabilitation.
- **Aim:**
- **To explore the evidence on the cost-effectiveness of available post-stroke rehabilitation technologies.**
- **To formulate a plan for future health technology assessment for our developed technologies (i.e., wearable devices, robots, exoskeleton).**

2 Methods

- **Keywords:** Stroke, Technology, Rehabilitation, Upper and Lower Extremities, Cost
- **Databases:** IEEE, Embase, PubMed (Central), Cochrane (Central), NHS EED, CEA Registry, HTA registry, INAHTA Registry
- **Search time period** until 12 Sep 2022

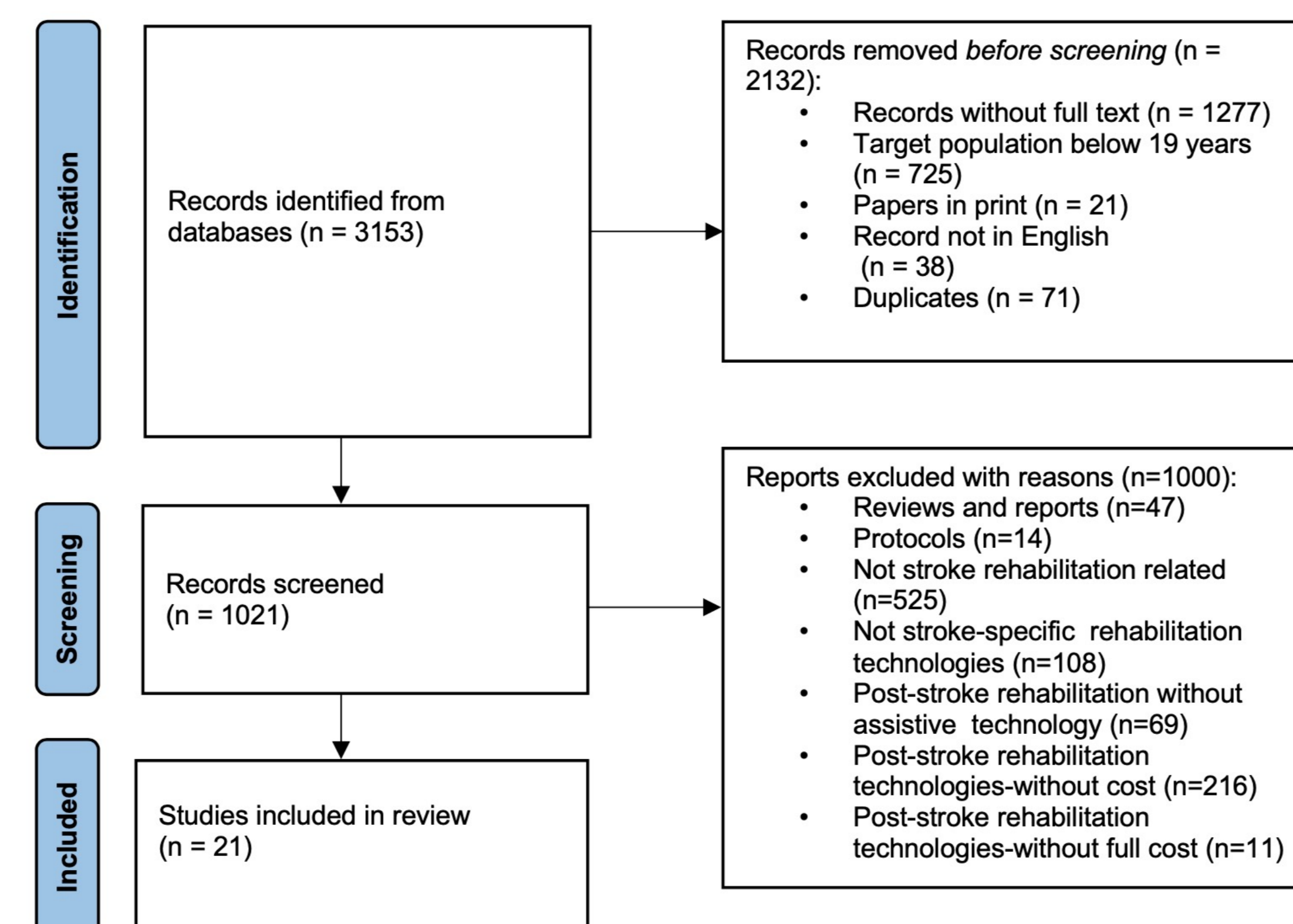


Figure 1: PRISMA Flow Diagram for the scoping review process.

- Only prototype development costs are reported in laboratory settings.
- In clinical settings, the limited sample size and diverse methodological approach (cost estimation, lack of perspective for cost analysis and the diversity of health outcome measures) limited the comparability of the results.
- In home settings, the method of reporting is mixed, which complicates the comparison.
- Technology assisted-rehabilitation is not cost-effective per se. However, it can become economically beneficial if the technology leads to reducing therapist time without reducing session time in countries where the resources of health care professionals are scarce.

3 Preliminary findings

Table 1: The articles with cost related to technology-assisted post-stroke rehabilitation and further cost analysis.

Setting	Number of articles (n)	Type of cost study	With analysed costs (n)	Cost-effective technologies (n)	Potentially cost-effective technologies (n)
Laboratory	11	Descriptive	-	-	-
		Cost-utility	2	-	-
Clinic	7	Cost-consequence	2	1	1
		Cost-comparison	3	-	2
		Cost-utility	1	-	-
Home	3	Cost-comparison	1	1	-
		Cost-utility	1	-	-
		Descriptive	-	-	-

4 Summary

- A uniform methodology of health economic analysis is needed to increase the comparability and generalisability of the study outcomes.
- Evaluation of safety, health and economic benefits of upper limb rehabilitation technologies (e.g., *RehabGym*) is needed in the development phase.
- Adhering to the current requirements and country-specific guidelines of health technology assessment is important.
- Service provided by novel technologies needs to be in accordance with stroke survivors' needs, societal, organisational and legal requirements.

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