

Project Title

Feasibility and Effectiveness of a Tech-enabled Self-management Intervention for Adults with Stroke Living in the Community

Project Lead and Members

Zidane Seow

Organisation(s) Involved

Singapore Institute of Technology, St. Andrew's Community Hospital

Healthcare Family Group(s) Involved in this Project

Occupational Theapist

Applicable Specialty or Discipline

Neurology

Aim(s)

Explore the effectiveness and feasibility of a self-management programme enhanced by free-to-use mobile apps in improving self-efficacy and quality of life amongst a group of chronic stroke survivors attending a day rehabilitation centre in Singapore.

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Conclusion

See poster appended/ below

Project Category

Technology

Digital Health, Mobile Health - Digital Apps

Training & Education

Learning Approach, Microlearning, Self-Directed Learning

Keywords

Tech-Enabled, Self-Management Interventions, Adults with Stroke Living In The Community, Free-To-Use Mobile Apps, Self-Efficacy, Quality Of Life

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ABSTRACT

Feasibility and Effectiveness of a Tech-enabled Self-management Intervention for Adults with Stroke Living in the Community



INTRODUCTION & AIMS

Self-management programmes are **effective** in preparing stroke survivors for community living by improving self-efficacy and quality of life^{1,2}

- ✓ overseas studies on efficacy of such programmes (e.g. IPASS-R)²
- ✗ **NO** local studies on efficacy of such programmes and

Mobile health applications have been specifically developed for research in stroke self-management overseas (e.g. improving cognitive function, increasing participation, improving quality of life)^{3,4}

- ✗ **Limited studies** on efficacy and feasibility of **free-to-use** apps^{5,6}

Explore the **effectiveness** and **feasibility** of a self-management programme enhanced by free-to-use mobile apps in improving **self-efficacy** and **quality of life** amongst a group of chronic stroke survivors attending a day rehabilitation centre in Singapore

METHODOLOGIES



Purposive sampling, 11 participants



Embedded mixed methods

Inclusion Criteria

- Saint Andrew's Community Hospital Day Rehabilitation Centre (SACH DRC) stroke patient with at least 3 months post-stroke
- Has access to a mobile device
- Basic knowledge and skills of using a smart device
- Basic English Literacy (participant or caregiver)

Exclusion Criteria

- Receptive aphasia and cognitive impairment (AMT <7)

Data Collection

Pre-intervention

- SSEQ
- SSQoL

Intervention

- Attendance and drop-out
- App-use diary
- Session notes

2-weeks & 3-months Post-intervention

- SSEQ
- SSQoL
- Semi-structured interview

Outcome measures

Effectiveness

- Self-efficacy → Stroke Self-Efficacy Questionnaire (SSEQ)
- Quality of Life → Stroke Specific Quality of Life Scale (SSQoL)
- Confidence in self-management
- Experience of programme

Feasibility

- Attendance and drop out rate
- App usage → App-use diary (frequency and duration of app-use over two weeks)
- Acceptability of apps and programme
- Satisfaction of apps and programme

Intervention

- 5 sessions x 45 mins/session
- One-to-one sessions, in-person or over Zoom
- Student researchers received training for facilitation
- Sessions designed by SACH occupational therapists based on expanded chronic care model⁷
 - Discussion of weekly content, guided exploration of selected applications, collaborative goal setting & action planning

Session Content

Stroke & stroke symptoms

Managing spasticity, upper limb retraining and strengthening

Stimulating and maintaining cognition

Healthy regime

Managing relapse/crisis, community resources, consolidation of learning

Apps

Stroke riskometer

Health buddy, Rehabit

Lumosity, Lively silver

Rehabit, Youtube

Web resources

FINDINGS (cont.)

Themes

Feasibility

- ✓ **Usefulness of app content** (education, exercises, cognitive games, unmet needs)
- ✓ **App features for supporting self-management** (reminders, habit tracking, health monitoring, journaling)
- ✓ **Usability of apps** (user-friendliness, user-training, complex apps, technical difficulties)
- ✓ **Experiences and attitudes for app-use** (lack personalization, in-person support, stroke symptoms, tech-use attitudes)
- ✓ **Satisfaction with programme** (socioemotional support, timing for programme, usefulness)

Effectiveness

- ✓ **Perceived confidence for self-management** (Some perceived ↑ in confidence level in using apps and online resources)
- ✓ **Preference for in-person support** (Value clearer instructions and immediate clarifications from therapist)
- ✓ **Suitability of apps for individual participants** (Some exercises/games in apps not specific enough to meet participants' needs)
- ✓ **Gaining new knowledge about stroke and resources for self-management** (Gained new insight about stroke prevention and identifying symptoms)
- ✓ **Readiness to change existing routines** (Participants had varying willingness to change existing self-management routines)

DISCUSSION

Effectiveness

Higher self-confidence → better able to self-manage⁸
 Participants required some degree of self-responsibility to benefit from programme⁹
 Programme may be more effective when implemented earlier, shortly after acute stroke period¹⁰

Feasibility

- Fair retention rate, high attendance rate → recruitment for pilot trial is feasible
- Technology Acceptance Model¹¹

Perceived Usefulness

- ✓ Education on stroke
- ✓ Exercise resources
- ✓ Cognitive games¹²
- ✗ Repeated content
- ✗ Limited personalization
- ✗ Features to aid self-management were unmeaningful

Perceived Ease of Use

- ✓ Training¹³
- ✓ User-friendliness¹⁴
- ✗ Poor optimization of accessibility
- ✗ Participants' stroke symptoms

Actual Usage Behavior

Low frequency and retention due to occasional use of apps as resource rather than routine use

Limitations

- Small sample size, purposive sampling → limited generalizability
- Fidelity of intervention not measured
- Ceiling effect of outcome measures
- Short intervention period

Conclusion

- No significant change in participants' quality of life and self-efficacy
- Some perceived usefulness for apps
- Participants were generally satisfied with the programme as a whole

FINDINGS



23 eligible, 14 interested, 11 completed programme



App w/ highest retention rate: Youtube
 App w/ lowest retention rate: Stroke Riskometer



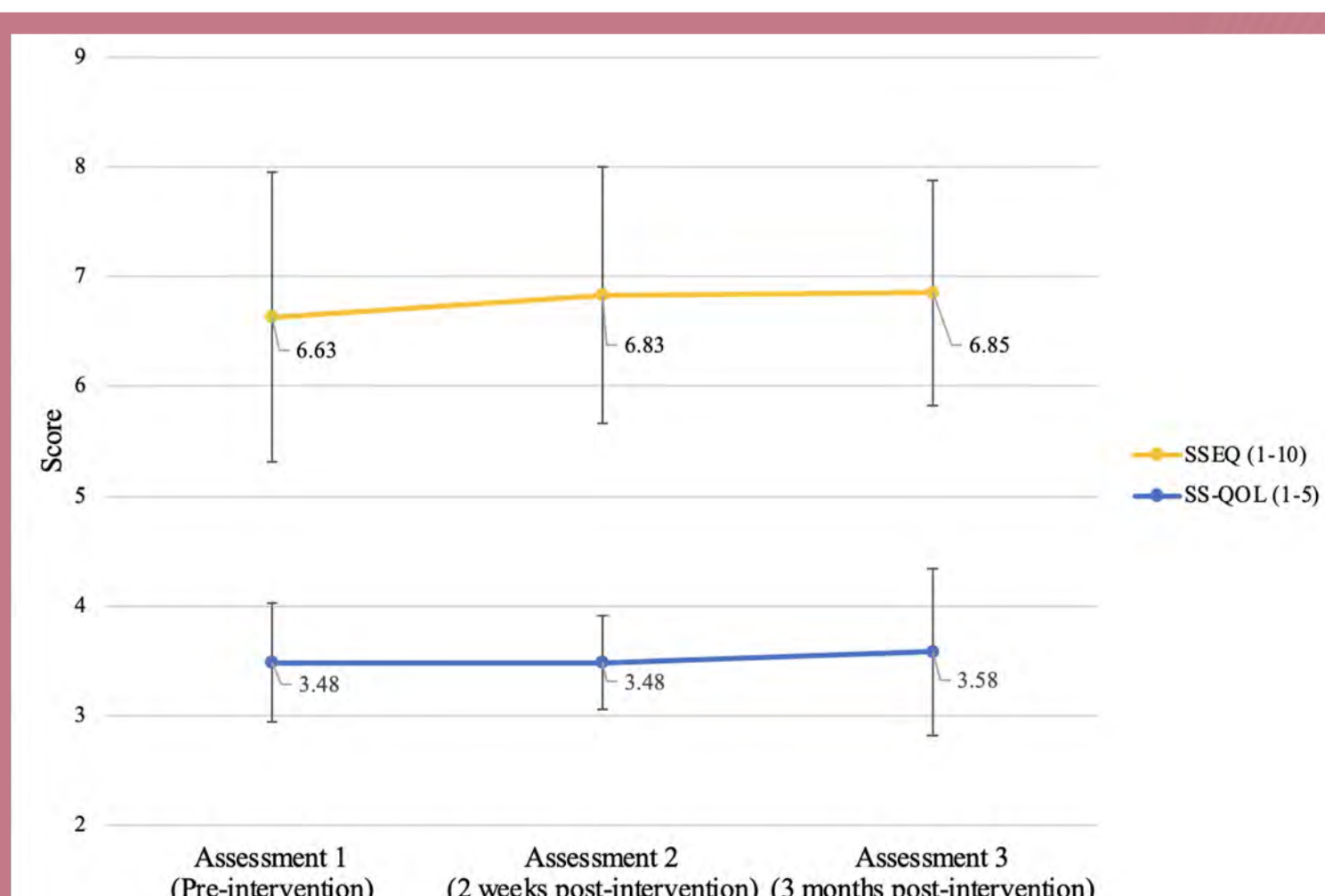
No statistically significant changes in self-efficacy and quality of life



Slight increase in raw scores of both outcomes



Average no. of times apps were used in a week: 3-5x



Scan QR for References in Superscripts

