

Cardiorespiratory fitness training sessions
delivered via telehealth

are

safe, feasible and acceptable

for community-dwelling stroke survivors.



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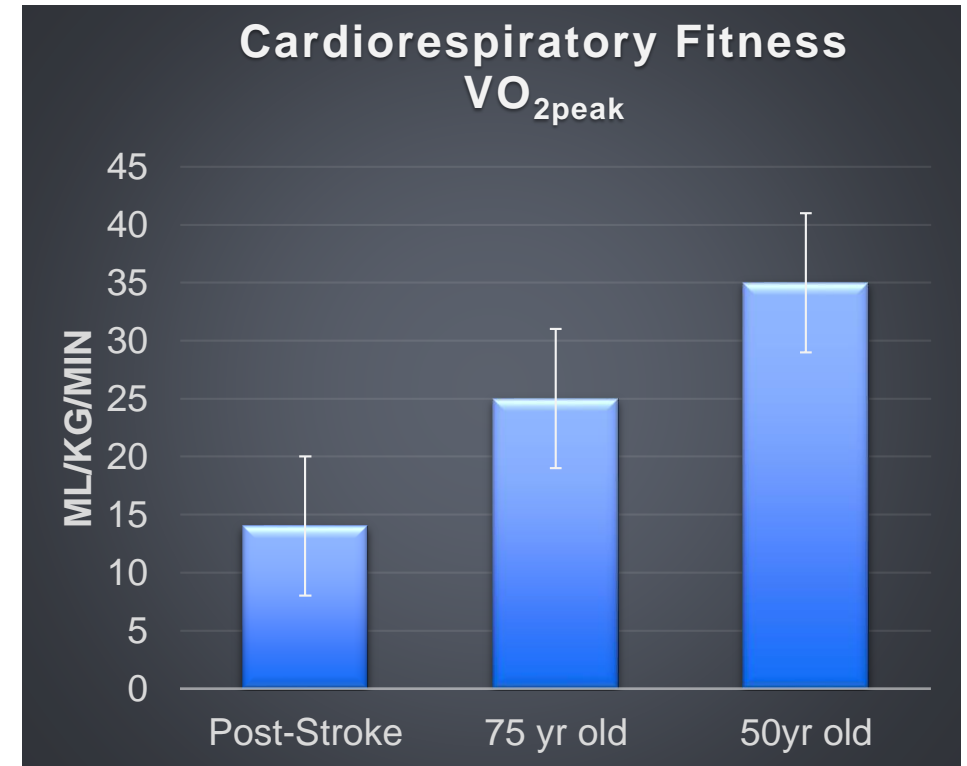


Health
Hunter New England
Local Health District



Background

1. People after stroke are not meeting physical activity guidelines
2. Cardiorespiratory fitness low after stroke
3. Barriers to exercise post-stroke:
 - logistical factors
 - psycho-social factors
 - stroke-related physical or cognitive impairments
4. Fitness gains and adherence to exercise are higher if exercise programs are supervised



Background: Telehealth Interventions

-programs aimed at increasing cardiorespiratory fitness

1. Other populations:

- cardiac rehabilitation¹
- COPD²
- cystic fibrosis³
- the elderly⁴

“effective and safe”

2. In stroke : less is known

- Feasibility
- Safety
- User experience



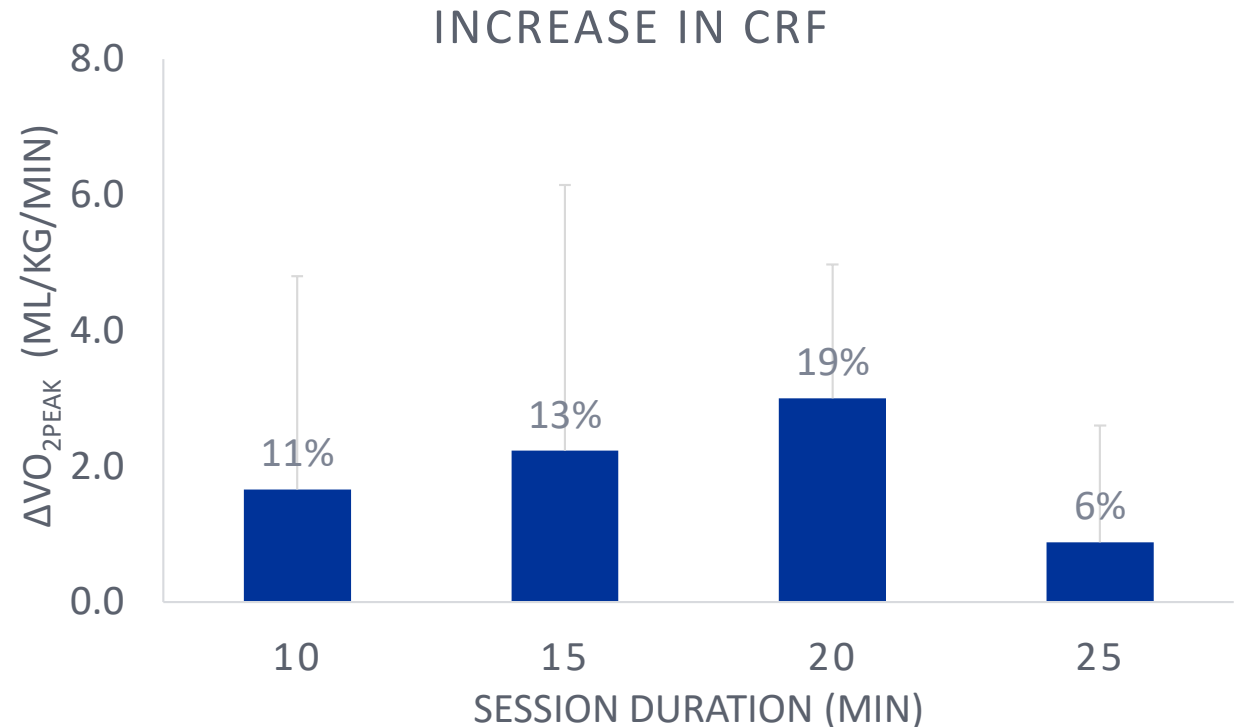
1. Clark et al, Eur Journal Prev Cardiol. 2015;22(1):35-74; 2.Hwang et al, JCardiopulm Rehab&Prev.2015;35(6):380-389; 3. Cox et al, Resp Care. 2015;60(3):422-429; 4.Crotty et al, J Telemed Telecare. 2014;20(7):370-376.



Background: Dose escalation trial (ExDose)

Doses (n=5/dose)

- 3d/week
- Mod-vigorous intensity
- 8 weeks
- Session duration increased by dose (10, 15, 20, or 25 min)
- Intervals: bodyweight/low impact



ANZCTR Trial ID: ACTRN12617000460303), Ethics approval HNEHREC Reference No: 16/10/19/4.09).



Aims

1. How **feasible** was it to deliver of supervised exercise by telehealth, in terms of:
 - Recruitment, retention, and adherence
 - Safety
 - Reliability
 - Usability
 -
2. How **satisfied** were participants with;
 - a. telehealth delivery of a home-based aerobic exercise program,
 - b. the dose of exercise delivered?
 - c. the content of exercise sessions?

Methods

Inclusion Criteria

- Community-dwelling adult
- ≥ 3 mo post-stroke
- Ambulant (FAC >3)
- Medical clearance

Telehealth eligibility

- Suitable internet/device/computer
- Responsible person present during sessions

Home Visit

1. Risk Assessment

- Exercise space
- Exercises
- Technique
- Suitability

2. Technical instructions

- HR
- RPE
- Telehealth Platform/IT



Methods : Data Collection

Exercise instructor

1. Session details
2. Telehealth related factors
3. Participant safety

Participant Feedback

A: 23 MCQ*, 2 open ended Q's

1. Telehealth platform
 - reliability
 - quality
 - usability
2. Participant preferences for telehealth exercise dose
3. Participant satisfaction with the supervised telehealth

B: Level of Technical Familiarity

- 15 multiple choice questions**
- Level of engagement with the internet, computers, and mobile phones
- 3 domains: internet, computers, and mobile phones
- Scored /100

* Adapted from TUQ (Parmanto et al, 2016 Int J Telerehabil 8(1); 3-10.

** Adapted from O'Brien et al . 2015 World Journal of Surgery,39(10), 2441-9

Results: Participant Characteristics

| Characteristic (n = 21) | |
|--|-----------|
| Age (yr), mean (SD) | 62 (11) |
| Gender, number male (%) | 12 (57) |
| Stroke side, number right side (%) | 10 (48) |
| Time since stroke (yr), mean (SD) | 7 (7) |
| Walking Ability | |
| Speed, comfortable (m/s), mean (SD) | 1.1 (0.3) |
| Technical Familiarity Score, mean (SD) (0-100) | 66 (25) |
| Score <50, n (%) | 7 (33) |
| Score 51-85, n (%) | 8 (38) |
| Score >85, n (%) | 6 (29) |

Results: Recruitment, Adherence and Retention

Recruitment

21 recruited out of 66 screened

17% ineligible to receive telehealth exercise delivery

- No suitable person at home (14%)
- No suitable internet access (3%)
- No suitable device (0%)

4% declined telehealth delivery

- Concerned about ability to manage telehealth/(IT)

Adherence

476 sessions completed

- 94% adherence
- 85% supervised by telehealth

Retention

- 4 withdrawals from ExDose
- None due to telehealth
- n=1 swapped to face-to-face supervision

Results: Safety

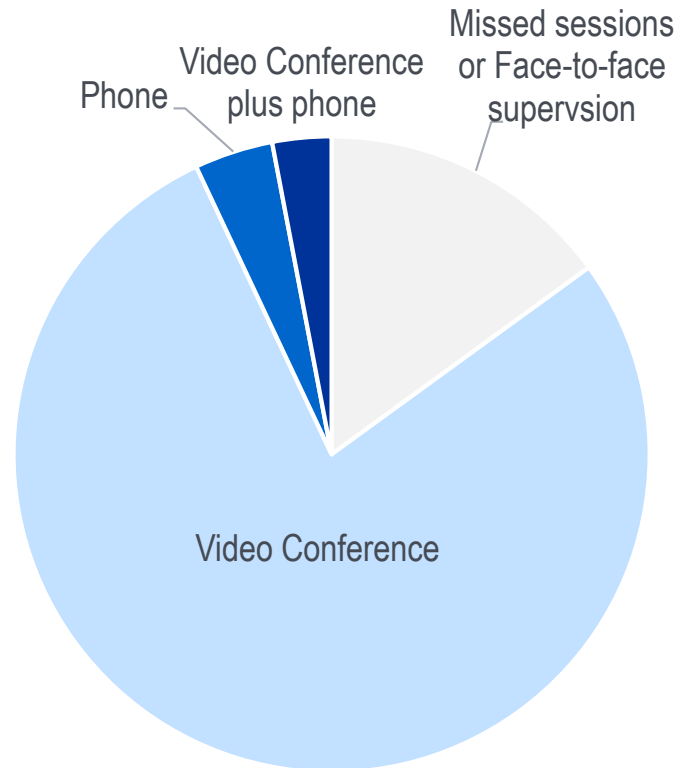
Safety

- 1 adverse event in 476 sessions
- No injuries
- ADLS not affected



Results: Reliability

Scheduled exercise sessions

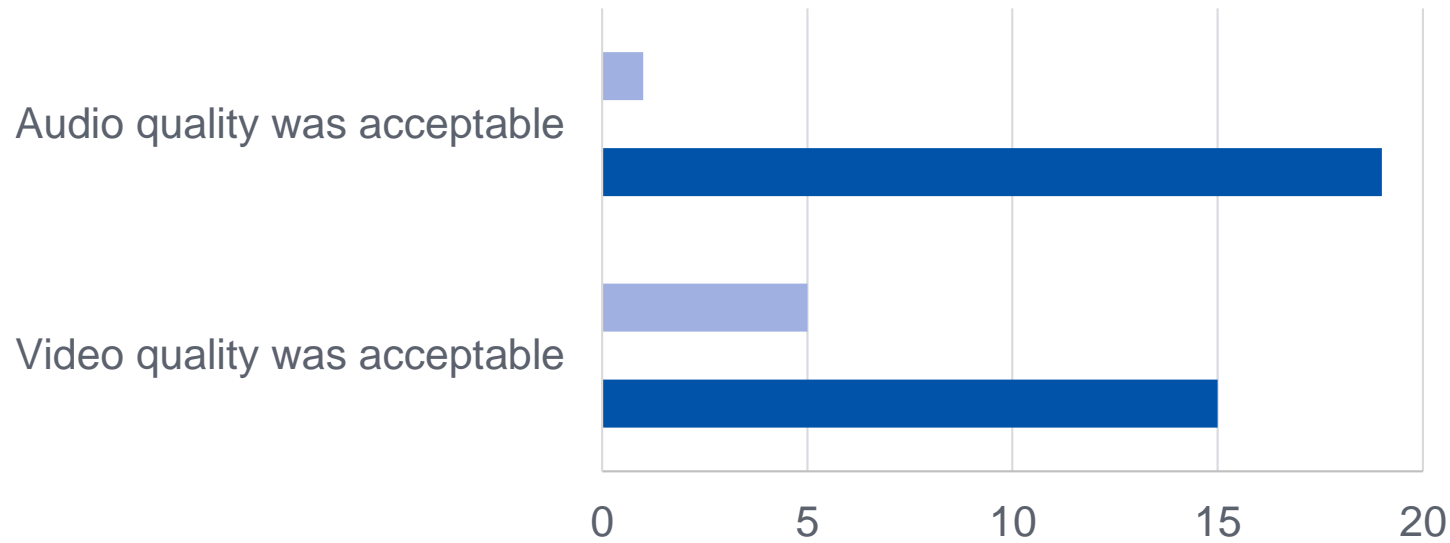


5% of sessions

- interrupted by internet drop out
- failure, or
- sub-optimal performance of the internet

Results: Quality

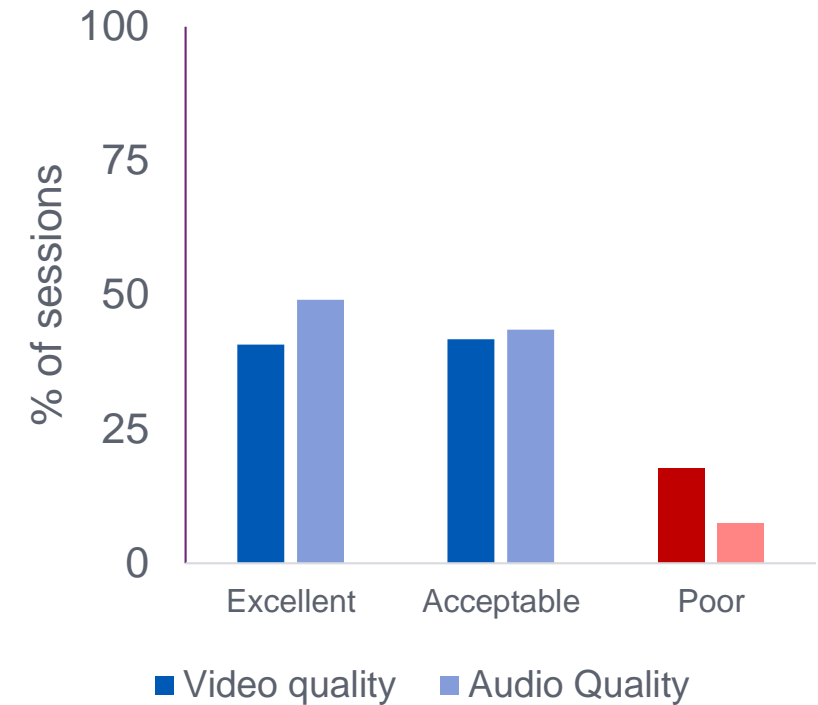
Participants: Overall



■ Neither agree or disagree
■ # Disagree or strongly disagree

■ # Agree or strongly agree

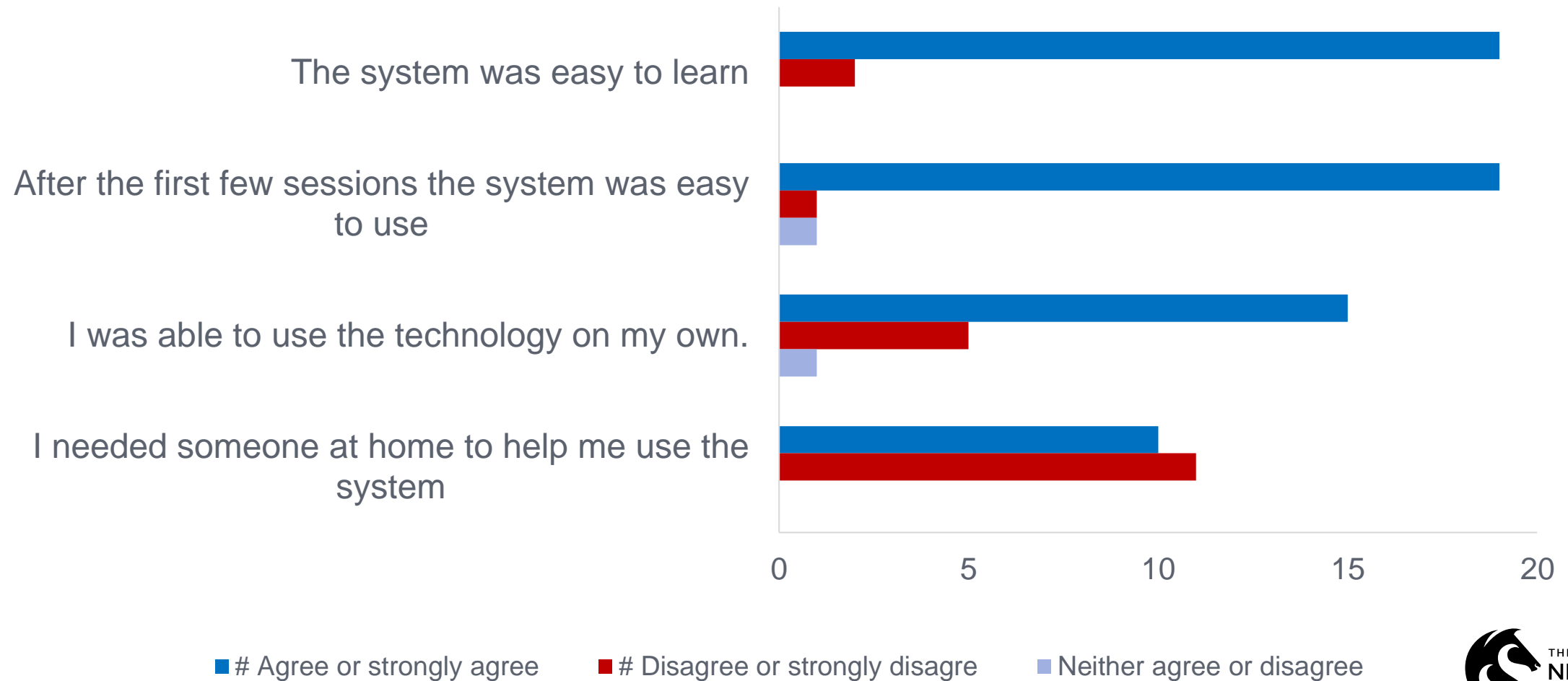
Instructor ratings: each session



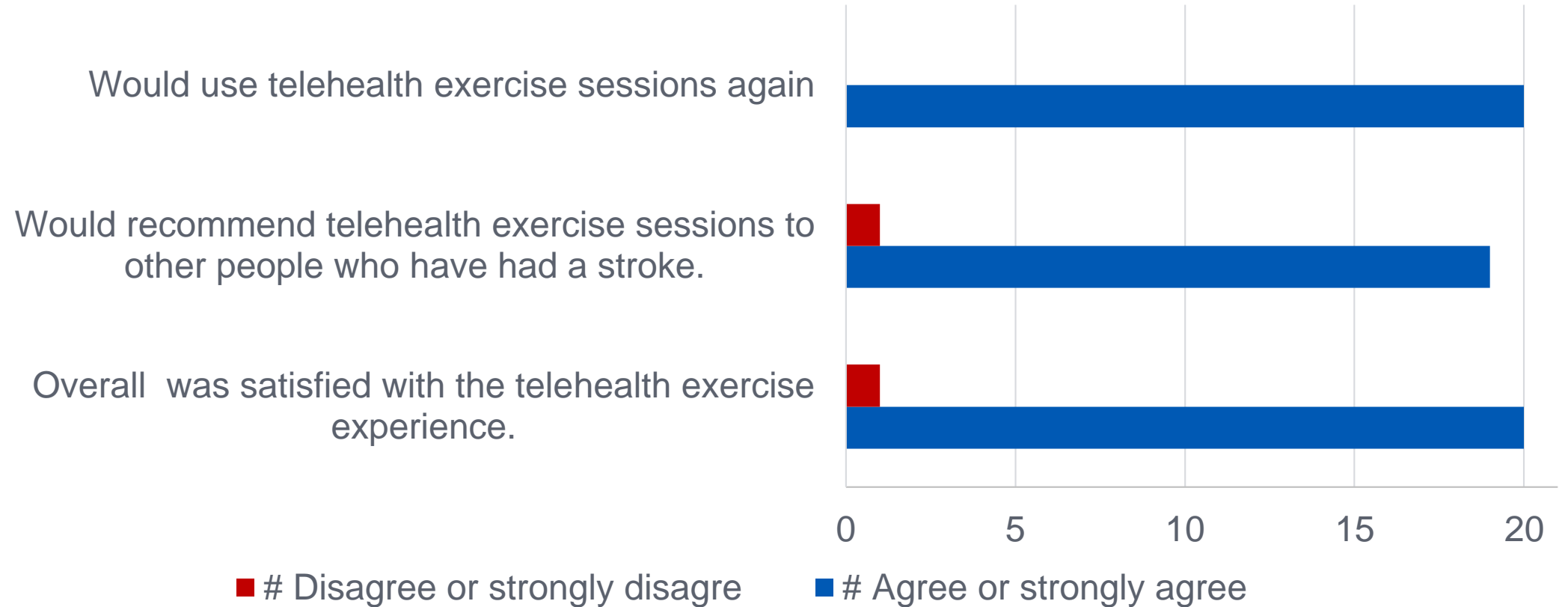
■ Video quality ■ Audio Quality



Results: Participant Usability



Results: Participant Satisfaction



Results: Participant Satisfaction

| Themes | Comments |
|--------------------------|----------|
| Benefits for participant | 26 |
| Instructor | 14 |
| Convenience | 13 |
| Satisfaction | 12 |
| Altruistim | 2 |

Discussion

Feasibility of delivering exercises: Participants

1. Recruitment affected
2. Adherence: high
3. Safety: low rate of adverse events



“Liked being supervised, otherwise wouldn't have done it, might take the short cut if not watched.”

Discussion

Feasibility of delivering exercises : Technical Factors

1. Reliability – acceptable
2. Quality- acceptable
3. Usability- highly rated.



Few barriers to successful delivery and uptake of telehealth exercise after stroke

Discussion

Feasibility of delivering exercises :

Satisfaction and future use

“Enjoyed the program immensely.”



“Didn't have to go out”

“Better than sleeping tablets”

“Immense application for rural and remote areas.”

Conclusions:

Telehealth delivery of exercise sessions to people after stroke

- Feasible and effective
- Neither age nor prior familiarity with technology affected participants' ability to participate.
- Eliminated the need for transport
- As access to higher speed internet increases over time, the user experience is likely to improve further..



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Results: Preferred dose- remove

