

Using Telehealth to Provide Speech Therapy, Physical Therapy, and Medication Management to Persons with Parkinson's Disease

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Introduction

Parkinson's disease

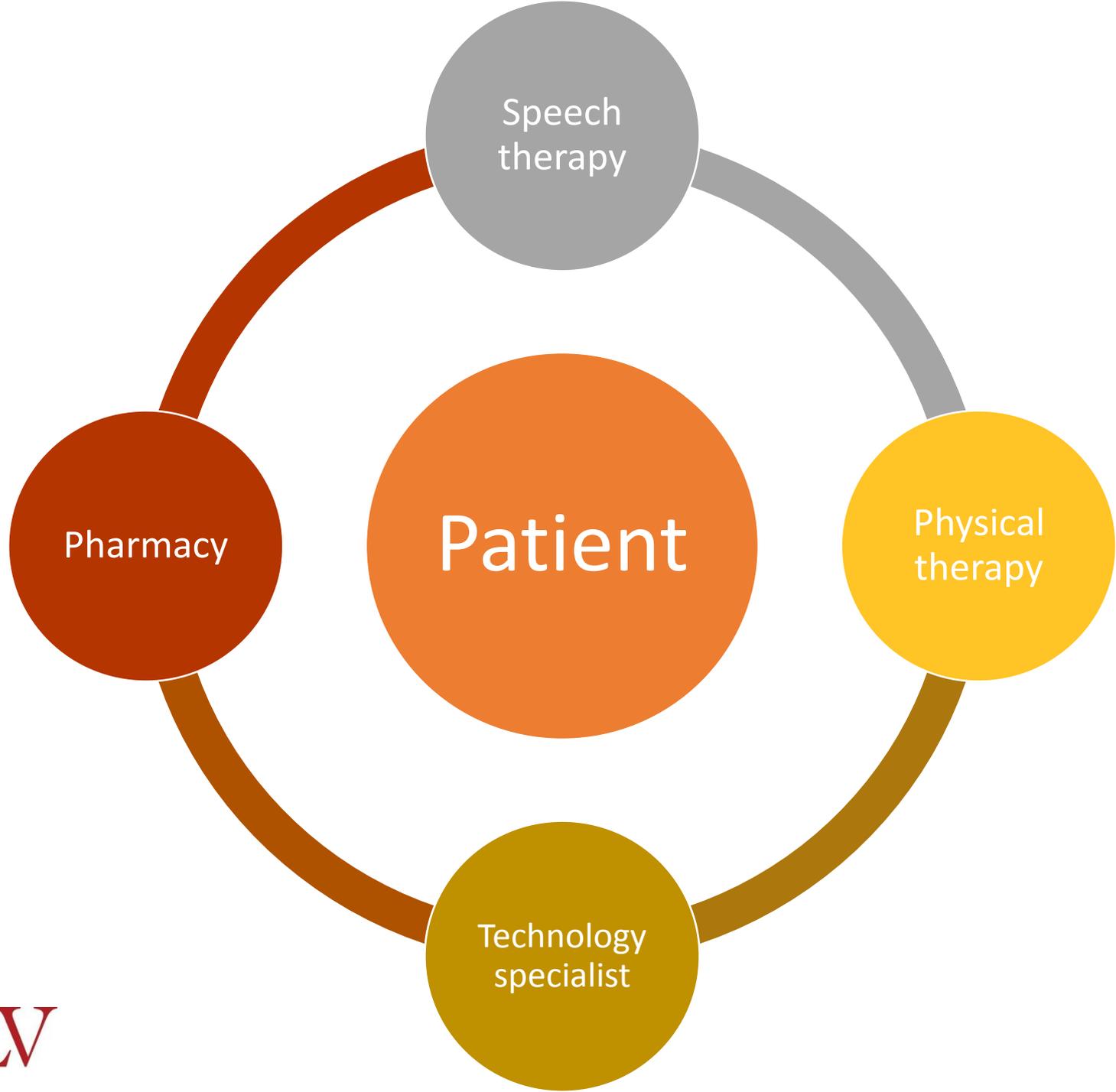
- Mobility
- Communication
- Medication management

Rural health disparities

- Lack of access to experts in PD
- Travel: distance, weather conditions

Telehealth

- Access to coordinated allied healthcare
- Online patient visits from their homes



Aims



- **Aim 1:** Test the **feasibility** of telehealth speech therapy, exercise therapy and medication management
 - H1: 80% of participants will complete 8 hours of speech, exercise, and medication sessions per week for 8 weeks
- **Aim 2:** Determine the **safety** of the coordinated telehealth described in Aim 1
 - H2: Participants will not have increased numbers of adverse events during the 8 week intervention
- **Aim 3:** Measure **signal of efficacy** for telehealth outcomes
 - H3: Participants will show higher communication effectiveness and increased loudness, increased number of sit to stand exercises, and increased medication adherence as compared to baseline

Participants – Preliminary Data

- N= 15
 - Age: Mean 73.3 years (from 57 to 93 years)
- 7 males & 8 females
- 8 from Wyoming & 7 from rural Nevada
- Duration of Parkinson's
 - Mean 9.3 years
 - Range 1 to 22 years

100% of the participants had some technology experience prior to this telehealth study.

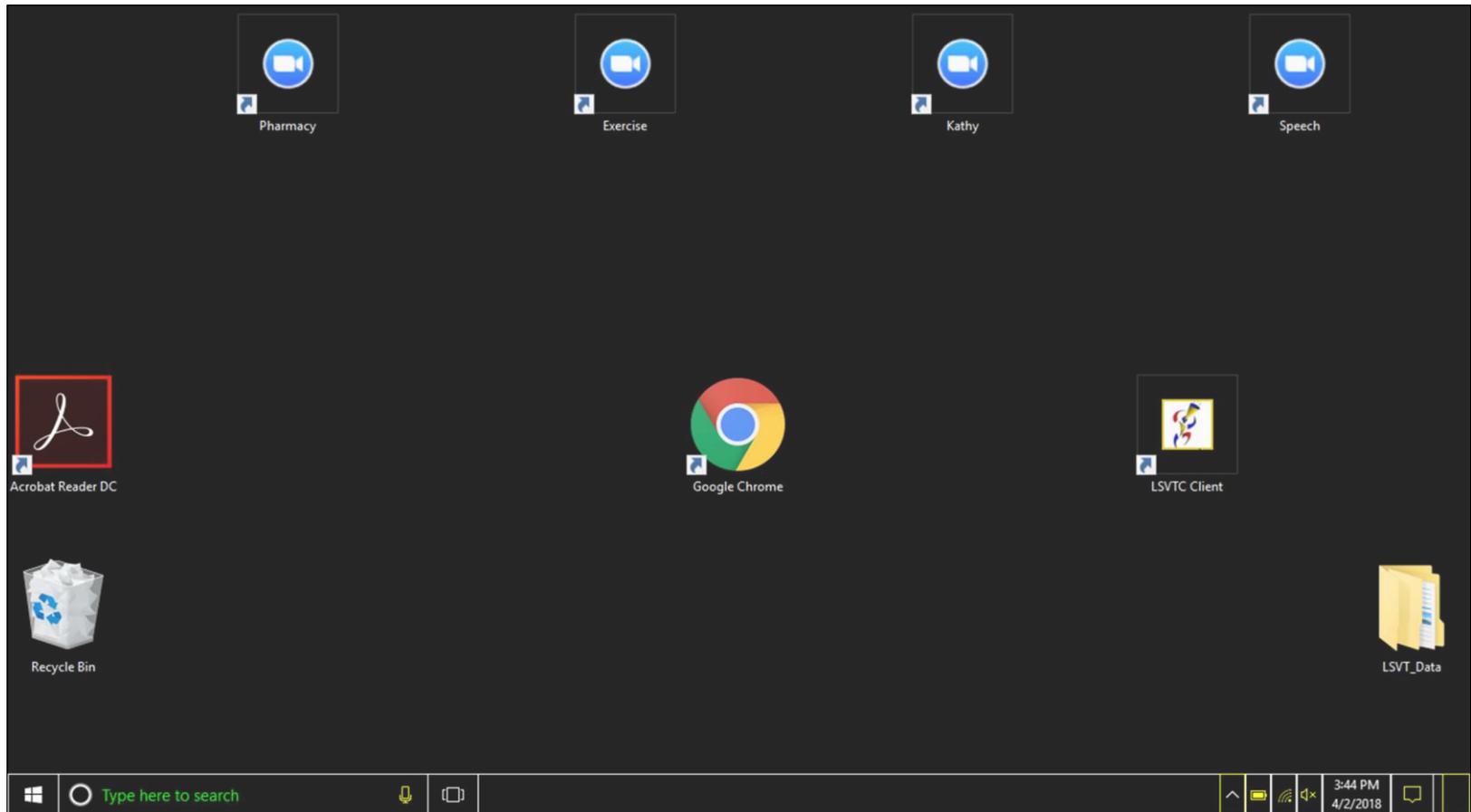
Methods



- **Technology:** Laptops were purchased for this study based on minimum guidelines provided by Lee Silverman Voice Treatment (LSVT):
 - 1GHz Pentium Processor
 - 512 MB RAM
 - Windows® 7, or later operating system
 - Microsoft Excel Software

Methods

- Each laptop went through a series of modifications to simplify the computer interface for this population.



Methods

- **Exploratory Phase II Behavioral Clinical Trial**
 - Feasibility
 - Safety
 - Signal of efficacy
- **8 weeks of telehealth**
 - Speech therapy
 - Physical therapy
 - Medication management
- **Partnership between Wyoming and Nevada**

Methods

Coordinated Allied Health Interventions Provided via Zoom

- For *all* sessions:
 - Emergency protocol at beginning of each session
- For safety
 - Only enrolled those without major balance symptoms
 - Safety protocol- pre-screening
 - Pulse-oximeter

Methods

Coordinated Allied Health Interventions Provided via Zoom:

- **Speech-language therapy:**
 - Lee Silverman Voice Treatment (LSVT LOUD)
 - Targeted vocal loudness during speech exercises
 - Occurred 4 times a week during the first 4 weeks
 - Once a week (with assigned homework) for the second 4 weeks

Methods

Coordinated Allied Health Interventions Provided via Zoom

- **Physical therapy:**

- Administered once a week for 60 minutes for 8 weeks
- Physical therapists conducted one-on-one treatments and made appropriate modifications for homework twice per week
- Participants received a pulse oximeter, cycling pedal, and therabands to use

Methods

Coordinated Allied Health Interventions Provided via Zoom

- **Pharmacy:** Pharmaceutical care delivered once a week for 8 weeks
 - Focused on:
 - unnecessary drug therapy
 - needed additional drug therapy
 - ineffective drug
 - dosage too high/low
 - adverse drug reactions
 - medication adherence

Preliminary Results

Aim 1: Test the feasibility of telehealth speech therapy, exercise therapy, and medication management

Successes:

- *Attended most sessions*
- *Improved using telehealth technology*
- *No traveling to receive intervention*
- *Participant-provider rapport*

Challenges:

- *Lack of/cost of internet*
- *Technology/internet issues*
- *Scheduling busy providers*

Preliminary Results

Aim 1: Test the feasibility of telehealth speech therapy, exercise therapy, and medication management

Intervention	Scheduled sessions	Average # of sessions (range) *	% of sessions completed in all 8 weeks
Speech Therapy	20	19.3 (15, 24)	96
Exercise Therapy	8	7.5 (5, 9)	93
Medication Management	8	6.8 (4, 8)	85

Preliminary Results

Aim 2: Determine the safety of the coordinated telehealth described in Aim 1

During 120 weeks of telehealth, no serious adverse effect

- *Minor adverse effect for speech therapy:
hoarse voice (n=2)*
- *Minor adverse effect for physical therapy:
muscle strain (n=1)*
- *No adverse effect for pharmacy*

Preliminary Results

Aim 3: Measure signal of efficacy for telehealth outcomes

- H3: Participants will show higher scores on communication effectiveness scale (CES) and increased loudness, increased number of sit to stand (STS) exercises, and increased medication adherence as compared to baseline

Variable	Timepoint	n	Mean \pm SD	Range	Difference \pm SD (baseline – 8 weeks)	p-value
CES	Baseline	15	21.7 \pm 6.4	(8.0, 31.0)	-1.6 \pm 5.6	0.3750
	8 weeks	14	23.8 \pm 6.9	(8.0, 31.0)		
STS	Baseline	15	9.5 \pm 4.0	(0, 14.0)	-1.6 \pm 1.4	0.0039
	8 weeks	13	11.6 \pm 3.6	(4.0, 17.0)		

Preliminary Qualitative Results

Providers N= 6

“I really enjoyed the project. I liked working with all my patients. I also enjoyed the portability of it, which was good when I was ill.”

“I thought the patients were delightful. The [project coordinators were] really helpful. Challenges are the obvious ones such as people just don't understand the technology quite yet.”

Participants N=13

“The speech therapist I thought that worked perfect. We had ...no problems. The pharmacist, that worked out very well, she was able to make some suggestions. I take plenty of medications for Parkinson's ... We made a couple of small changes... she was able to help me with other medical problems.”

“The physical therapy it was of course in-home. We worked with her... every other day. It seemed like it was good exercise it was not real taxing... It was strong enough that she was able to get my blood heart rate up to where she [wanted].”

Challenges & Limitations

- Multiple IRBs delayed project 6 months
- Finding and using inexpensive laptops
- Training participants to use Zoom technology
- Limited tech support
- Providers scheduling
- Lack of internet or slow internet connections

Next Steps

- 1) Measure 6-month outcomes for telehealth disciplines
- 2) Finish analysis of qualitative research data following 8-week intervention
 - Telehealth providers and
 - PD participants
- 3) Conduct RCT comparing equivalency of “usual care” to coordinated allied health telehealth for persons with Parkinson’s disease
- 4) Currently conducting a survey of people with PD and their caregivers to determine what ‘usual care’ is.

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