

Current perspectives on the role of telemedicine in the management of Parkinson's disease

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Current perspectives on the role of telemedicine in the management of Parkinson's disease

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Background

- Parkinson's disease (PD) is a progressive neurological disorder
- The number of patients who receive specialty care continues to be limited
- The benefits of seeing a movement disorder specialist for management of PD have been well established
- Telemedicine has been suggested as a useful tool in addressing the problem of access to specialty care
- The literature suggests that using telemedicine to treat PD is
 - Feasible and economically advantageous
 - Associated with high satisfaction
 - Comparable in quality to in-person care

Results

- The strength of evidence for each criterion was color-coded
- Green = the study satisfied the criterion
- Yellow = the study was ambiguous
- Red = the study did not satisfy the criterion

Randomized Controlled Trials - Critical Appraisal (Joanna Briggs Institute Checklist)				
	Dorsey et al (2010)	Dorsey et al (2013)	Wilkinson et al (2016)	Beck et al (2017)
Was true randomization used for assignment of participants to treatment group?				
Was allocation to treatment group concealed?				
Were treatment groups similar at baseline?				
Were participants blind to treatment assignment?				
Were those delivering treatment blind to treatment assignment?				
Were outcomes assessors blind to treatment assignment?				
Were treatment groups treated identically other than the intervention of interest?				
Was follow up complete and if not, were differences between groups in terms of their follow up adequately described and analyzed?				
Were participants analyzed in the groups to which they were randomized?				
Were outcomes measured in the same way for treatment groups?				
Were outcomes measured in a reliable way?				
Was appropriate statistical analysis used?				
Was the trial design appropriate, and any deviations from the standard RCT design accounted for in the conduct and analysis of the trial?				

Discussion

Advantages of Telemedicine

- Treating PD with telemedicine is feasible and economically advantageous
- High levels of interest and satisfaction exist with patients and providers
- Quality of care is comparable to in-person care based on objective measures
- May increase access to care

Limitations of Telemedicine

- Current research is limited by sample size, demographics, and risk of bias
- Current video technology may not be sufficient to detect necessary details
- Reimbursement for telemedicine visits remains limited
- Physicians are required to be licensed in the state where the patient is physically located

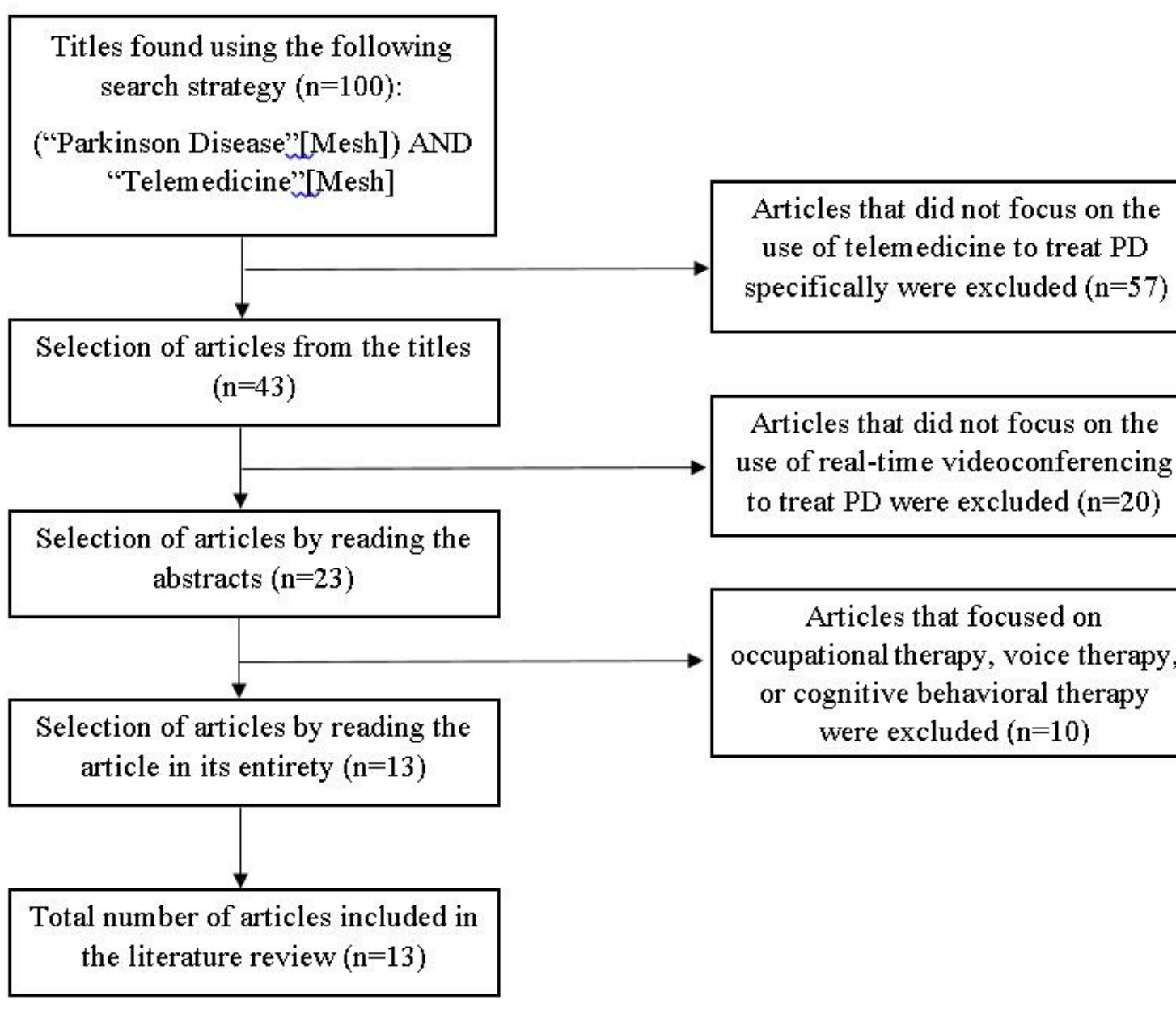
Problem Statement

This project will evaluate the advantages and disadvantages of telemedicine visits to patients with Parkinson's disease and to their medical providers.

Methods

- The literature search strategy is illustrated by Figure 1

Figure 1: Flowchart of the search and selection of articles for inclusion in the literature review



- Evidence was evaluated using the Joanna Briggs Institute Checklist¹ for the randomized controlled trials, case series, and case reports
- The survey studies were evaluated using the Center for Evidence-Based Medicine checklist².

Table 2 Summary of studies investigating cost reduction as a primary outcome			
Author (year)	Setting	Intervention	Cost reduction
sample size (n)			
Duration (d)			
Samii et al ¹⁸	Nursing homes, satellite clinics	A total of 100 telemedicine follow-up visits were performed	Total estimated patient savings of 1,500 travel hours, 100,000 travel km, and \$37,000 in travel and lodging costs
n=34			
d=3 years			
Dorsey et al ⁶	Patient's home	In-home telemedicine visits were compared to in-person care	Patients saved an average of 100 travel miles and 3 hours per visit, spending less time with a physician than when receiving in-person care (18 minutes vs 207 minutes)
n=20			
d=7 months			
Pretzer-Aboff and Prettyman ³	Multi-disciplinary PD clinic	A multi-disciplinary PD clinic was developed, in which a movement disorder specialist and a clinical psychologist could see patients via telemedicine	Each patient reduced travel time/distance by an estimated 1.5 hours, 80 miles, each way
n=36			
d=6 months			
Qiang and Marras ¹¹	N/A	A survey was distributed to 34 users of telemedicine and 103 non-users	Patients saved an average of \$200 and 209 minutes in travel time with a reduction of 160 km in distance traveled per visit
n=137			
d=N/A			
Wilkinson et al ¹²	Patient's home, satellite clinic	Survey completed by patients receiving telemedicine care at home and in a satellite clinic was compared with patients receiving in-person care	Patient satisfaction was higher in both telemedicine groups for survey items related to travel distance, travel time, and general convenience
n=86			
d=1 year			
Barbour et al ¹³	Nursing home	Patients living in a continuous care facility were provided with long-term care via telemedicine	The cost of a telemedicine visit (\$117.30) was found to be less than the facility's average cost for transporting a patient to the neurologist's office
n=16			
d=3 years			
Beck et al ¹⁷	Patient's home	Usual care by neurologist was compared to usual care supplemented by four in-home virtual visits	Patients saved an average of 88 minutes and 38 miles per virtual visit
n=195			
d=1 year			

Table 3 Summary of studies investigating satisfaction as a primary outcome			
Author (year)	Setting	Intervention	Satisfaction
sample size (n)			
Duration (d)			
Samii et al ¹⁸	Nursing homes, satellite clinics	A total of 100 telemedicine follow-up visits were performed	Providers agreed or strongly agreed with statements regarding their satisfaction with telemedicine for all questions in 99 of 100 visits
n=34			
d=3 years			
Dorsey et al ⁶	Nursing home	Video visits in a nursing home were compared to usual care	13 of 14 patients opted to receive specialty care via telemedicine in the future; changes in patient satisfaction were not statistically significant
n=13			
d=6 months			
Shprecher et al ¹⁰	N/A	A survey was distributed to patients being treated at a University PD clinic about a hypothetical research study	Patients were more willing to participate in clinical trials if some or most of the visits occurred via telemedicine at a local clinic
n=113			
d=N/A			
Venkataraman et al ¹⁹	Patient's home, satellite clinic	Patients were offered a single video visit	100% of patients that completed survey were likely or very likely to recommend telemedicine to a friend
n=55			
d=single visit			
Dorsey et al ⁶	Patient's home	Video conferencing connected participants with specialists to determine feasibility of virtual research visits	Overall satisfaction (satisfied or very satisfied) was 79% among neurologists and 93% among participants
n=204			
d=single visit			
Qiang and Marras ¹¹	N/A	A survey was distributed to 34 users of telemedicine and 103 non-users	53% of non-users were interested in using telemedicine; nearly 90% of users were highly satisfied or satisfied with technical aspects of telemedicine
n=137			
d=N/A			
Wilkinson et al ¹²	Patient's home, satellite clinic	A survey completed by patients receiving telemedicine care at home and in a satellite clinic was compared to patients receiving in-person care	Patients receiving telemedicine were more satisfied in areas related to convenience and accessibility
n=86			
d=1 year			
Barbour et al ¹³	Nursing home	Patients living in a continuous care facility were provided with long-term care via telemedicine	All patients chose telemedicine when given the choice of being followed in the office or via telemedicine
n=16			
d=3 years			
Beck et al ¹⁷	Patient's home	Usual care by neurologist was compared to usual care supplemented by four in-home virtual visits	97% of patients and 86% of physicians were either satisfied or very satisfied with their telemedicine experience
n=195			
d=1 year			

Ideal Practice Design

- Patients seen in person first
- Remote clinic with adequate technology, large, well-lit room
- Staff present to take history, vitals, and perform certain physical exam maneuvers

Relevance to SELECT

- VBPC – telemedicine provides comfort, convenience, and savings for patients
- Health Systems – importance of understanding how reimbursement, licensing, and practice design influence patient access to care

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