The Impact of Assistive Technology on the Quality of Life of Home-Dwelling Individuals with Parkinson's: *A Scoping Review*

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Objectives

By the end of this presentation...

1. *Understand*

Background

Parkinson's Disease (PD)

Depletion of dopaminergic neurons in the substantia nigra[1]

More than 6 million people diagnosed with Parkinson's Disease[2]

Median age of onset = 68 years (men) & 70 years (women)[1]

http://chen2820.pbworks.com/w/page/11951480/Stem%20cells%20in%20Parkinson%27s%20Disease

Impacts of PD

"Cardinal Signs"[3]

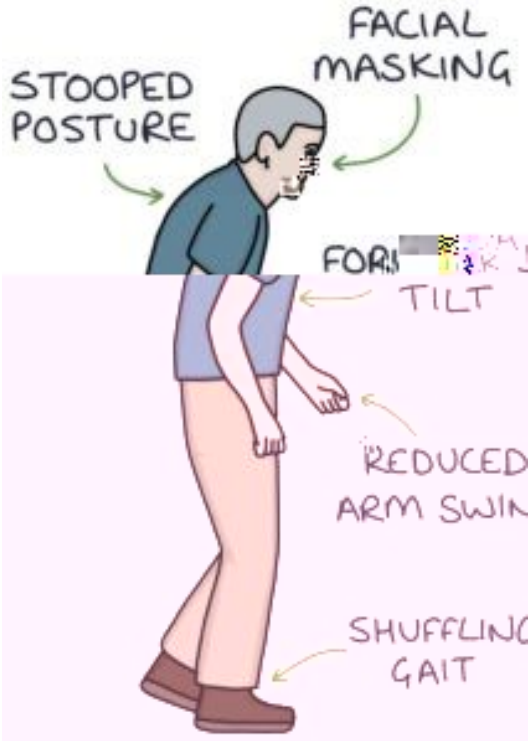
remors

igidity

kinesia

ostural instability

There is a varied prominence of symptoms progression.[3]



https://zerotofinals.com/medicine/neurology/parkinsons/

Assistive Technologies

Utilize technology to assist the user and allow them to become as independent as possible.[4]

- Less money to spend on caregivers
- Increased sense of independence and self worth

Can either *assist* or *monitor* the user.[4]

In the home, this creates a supportive environment, enabling an active role in daily life.[1]

Purpose

This scoping review analyzed the impact of assistive technology on QoL of home-dwelling individuals with Parkinson's Disease.

Methods

Databases

ProQuest

Cochrane

PubMed

EBSCO

Search Limits

Published 2012-2022 (all databases)

Peer-Reviewed (ProQuest, EBSCO)

“Anywhere except full text” (ProQuest)

“Title abstract keyword” (Cochrane)

Selection Criteria

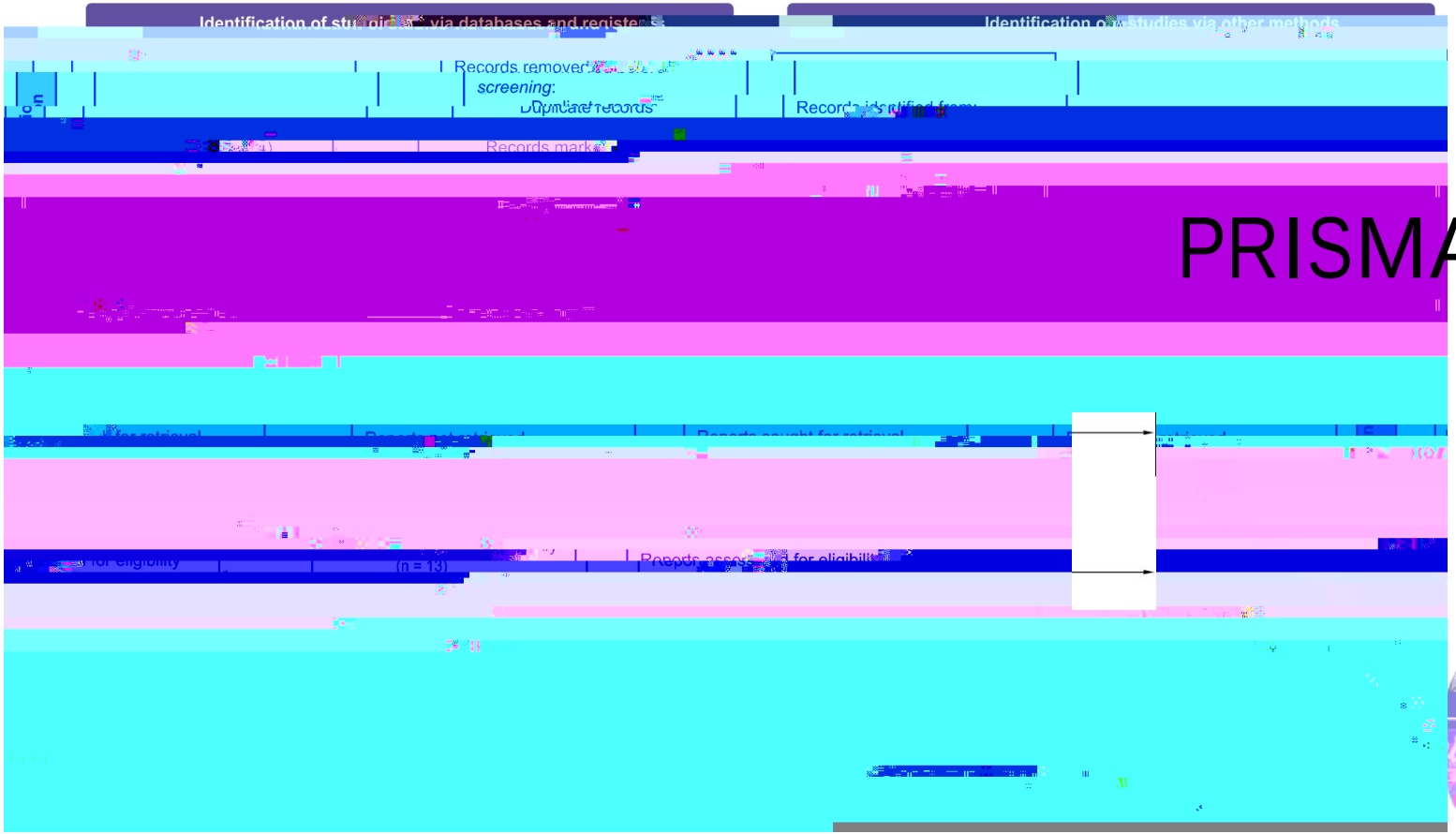
Home-dwelling people with Parkinson's

Assistive technology used daily at home

QoL outcomes: physical *or* cognitive

Qualitative and/or quantitative

Results


Identification of studies via databases and registers
Identification of studies via other methods
Records removed before screening:
Duplicate records
Records marked
for retrieval
Reports sought for retrieval
Reports sought for retrieval
for eligibility
(n = 13)
Reports assessed for eligibility

PRISMA

Results

There were 185 articles screened for eligibility.

A total of 6 articles fulfilled all criteria.

- Three reported on home assistive devices[1-2,5]
- Three reported on home monitoring devices[6-8]

Sample Size[1-2,5-8]

- *Range*: 13 - 290 participants
- *Total*: 452 participants

Methodological Quality

Each article was assessed for methodological quality by two independent reviewers who came to a consensus.

Mixed Methods Appraisal Tool (MMAT)

Mixed Methods (n = 1)[2]
Quantitative (n = 4)[1,6-8]
Qualitative (n = 1)[5]

Levels ranged from 60% - 100%, with an average of 80%

Interventions

Frequency = 1 session - 3x/week[1-2,5-8]

Duration = 1 episode - 1 year[1-2,5-8]

Protocols

- Survey[2]
- Simulated training[1]
- Focus groups[5-6]
- Patient monitoring[7-8]

Results: Home Assistive Devices

Statistically significant increases in QoL with home automation (HA) were found ($p<0.001$).[1]

Though speech was a reported issue, participants

Results: Home Monitoring Devices

Statistically significant improvements with walking were found ($p=0.02$).[8]

79.9% of participants either strongly agreed or agreed that it helped improve mobility.[6]

48% of participants perceived themselves as “safer” or “much safer” with remote patient monitoring.[7]

Conclusions

Conclusions

Moderate to strong evidence supports the use of assistive technology in the home setting to promote the QoL for home-dwelling individuals with Parkinson's.

Home assistive devices (VAT & HA) and home monitoring devices are supported by this evidence.

Future Research

There was no consistent device identified by the studies as being ideal for home-dwelling people with PD.

Limitations

Clinical Relevance

Assistive technology is an option of support for people with Parkinson's struggling at home due to their PD-related symptoms.

Physical therapists should be knowledgeable of these support devices.

- Identify, introduce, and educate patients

References

1. Latella D, Grazia Maggio M, Maresca G, Andaloro A, Anchesi S, Pajno V, De Luca R, Di Lorenzo G, Manuli A, Calabro RS. E ects of domotics on cognitive, social and personal functioning in patients with Parkinson's disease: a pilot study. *Assist Technol.* 2021. doi: 10.1080/10400435.2020.1846095
2.

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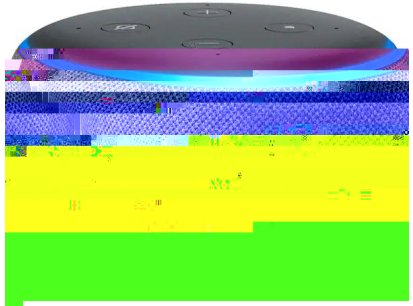
Questions?

Appendix

Assistive Technologies



https://www.homedepot.com/p/Amazon-Echo-Dot-in-Charcoal-Gen-3-B07FZ8S74R/313729506

https://www.walmart.com/ip/Google-Home-Smart-Speaker-Google-Assistant-Light-Grey-White/54742302