Seeing Beyond: OT's role in low vision in individuals with neurodegenerative disease

Maura Giannone, Natalie Rhoads, Maggie Sheridan, and Kerri Wells
Faculty/Librarian Mentor(s): E. Adel Herge, OTD, OTR/L, FAOTA; Abby Adamczyk, MLIS, AHIP; Larissa Gordon, MS, MEd, MA; Paul Hunter, DMD, MLIS; Gary Kaplan, MS

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Objectives of Presentation:

- ***Explain*** the association between neurodegenerative disease (NDD) and low vision, including its impact on occupational performance
- ***Identify*** the role of occupational therapy in providing interventions to address visual impairment among individuals with NDD based on current literature
- ***Apply*** evidence-based research to address occupational performance and quality of life for individuals with NDD experiencing low vision

PICO: What interventions within the scope of OT practice improve occupational performance for adults with low vision due to neurodegenerative diseases?

Methods:

- Databases used: PubMed, CINAHL, and SCOPUS
- Search terms: Neurodegenerative diseases, Parkinson disease, Huntington disease, Multiple Sclerosis; vision, low; visual impairments, diplopia, occupational therapy/therapists, rehabilitation, evidence-based practice, education of visually disabled, self-help devices, activities of daily living, health, quality of life, self-care, functional status
- Critique process: Group screening of titles/abstracts, individual review of full text articles using critical review forms, peer review process with cross-checking
- Final articles found: Initial search = 333 articles; Title, abstract, full text screening. Final = 5 quantitative articles, 1 qualitative article

Results and Identified Themes:

1. The Use of Technology (Moderate Evidence)

- Dogru-Huzmeli et al. (2021)- Level IV
  - Intervention: Cawthorne-Cooksey exercises (delivered via telehealth)
  - Clinical significance/Results: Tele-Rehabilitation may improve quality of life and decrease symptoms of diplopia.
- De Luca et al. (2019)- Level I
  - Intervention: Computer-assisted cognitive rehabilitation (CACR)
  - Effects/Results: CACR Intervention group had greater increase in visual spatial scores on ACE-R compared to control group. **Statistically Significant: ($p<0.05$)**
- Mednick et al. (2017)- Level II (qualitative)
  - Intervention: iPad teaching module administered to individuals with low vision
  - Clinical significance/Results: OTs may consider using accessibility features on iPads during skilled services to increase quality of life. Two themes emerged from data analysis including independence and social connectivity.
- Akinwuntan et al. (2014)- Level III
  - Intervention: Simulator-based driving training program
  - Effects/Results: Simulator-based programs for persons with relapsing-remitting multiple sclerosis is not yet supported by evidence. No statistically significant difference

2. Reducing Risk of Falls (Low Evidence)

- Padula et al. (2015) - Level III
  - Intervention: Yoked prisms inserted into frames of previously worn corrective lenses
  - Effect/Results: Reduced fall risk due to improved balance after use of yoked prism. **Statistically Significant**: ($p < 0.0001$)
- Alcock et al. (2020) - Level II
  - Intervention: High contrast obstacles in simulated environment
  - Effect/Results: During the high contrast course, there was no significant difference in total gaze duration and approach time between the control and intervention groups. No statistically significant difference.

3. Maximizing Quality of Life (Low Evidence)

- Dogru-Huzmeli et al. (2021)- Level IV
  - Intervention: Cawthorne-Cooksey exercises (delivered via telehealth)
  - Clinical significance/Results: Tele-Rehabilitation may improve quality of life and decrease symptoms of diplopia.
- Mednick et al. (2017)- Level II
  - Intervention: iPad teaching module administered to individuals with low vision
  - Clinical significance/Results: OTs may consider using accessibility features on iPads during skilled services to increase quality of life. Two themes emerged from data analysis including independence and social connectivity.

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Contact: mas104@students.jefferson.edu, keo007@students.jefferson.edu, mgg006@students.jefferson.edu, nxr051@students.jefferson.edu