Review question

What is the effectiveness of interventions within the scope of occupational therapy to maintain, restore, and improve performance in ADLs and IADLs within the home for older adults with low vision?

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Academic partnership

○ Non-thesis project: 4 IUOT graduate students
  Melodie Brost, OTS
  Vanessa Horton, OTS
  Sarah Kenyon, OTS
  Kristen Mears, OTS
○ 2nd reader: an OT practitioner, Rehabilitation Hospital of Indiana
  Lisa Piercy, OTR

Scope of the question- in PICO term

Patient: Older adults with low vision
Intervention: Within the scope of OT practice
Comparison:
  Level I & II (more than one group):
    Intervention vs. usual care
    Intervention vs. no intervention
  Level III (one group):
    Pre vs. post intervention
Outcome: ADLs and IADLs within the home

Significance of the review question

○ Negative impact of vision loss on ADLs and IADLs in older adults (Haymes et al., 2002)
  • Struggle to maintain occupations within home (Girdler 2008; Rudman 2010)
  • Difficulty performing housework and money management (Burmedi et al., 2002a)
  • Higher rates of depression (Burmedi et al., 2002b)
○ OT involvement in low vision rehab (Scheiman 2007)
  • Health Care Finance Administration (HCFA, 1990)
  • The Centers Medicare and Medicaid (2002)
  • AOTA Low Vision Certification (2006)

Literature screening process

Each title and abstract was screened by 2 student reviewers

Comparison of decision results

Yes/Yes
Yes/No
No/Yes
No/No
Excluded
Included

Discussion
Consensus reached?

Included
Dr. Liu

Search results

17 Trials (23 articles)
Level I = 9 trials
Level II = 5 trials
Level III = 3 trials

Referrals from other review groups
Reverse lookup
Inclusion/exclusion criteria
Duplications
Trial characteristics

- Mean age of trial participants: late 70s in general
  - 80+ years: 7 trials
  - 70 to 80 years: 10 trials
  - 69 years: 1 trial
- Low vision conditions
  - Only age-related macular degeneration: 8 trials
  - Mixed or not specified: 10 trials
- Explicitly state having OT in the research or rehab team: 5 trials
- Publication year
  - 1990 to 2000: 3 trials
  - 2001 to 2010: 15 trials

Geographic locations of reviewed trials

Trials by intervention themes and evidence level

<table>
<thead>
<tr>
<th>Intervention Theme/Training</th>
<th>Level I</th>
<th>Level II</th>
<th>Level III</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-component patient education/training</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Multidisciplinary service</td>
<td>3</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Low vision aids training</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
| Single service or training  
  - Home visits by service teachers  
  - Orientation and mobility training  
  - Prisms  
  - Eccentric viewing training at home  
  - Lighting adjustment at home | 1 | 1 | 3 |

Multidisciplinary service: 5 trials (3 level I, 1 level II, 1 level III)

<table>
<thead>
<tr>
<th>Level</th>
<th>Service Content</th>
<th>Outcome Measures</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Involve family members in rehabilitation</td>
<td>FAQ &amp; FVPT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Goal attaining</td>
<td>FIMBA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Adding 3 home visits</td>
<td>MLVQ</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>An optometrist vs. multidisciplinary rehab team</td>
<td>LVQOL</td>
<td></td>
</tr>
<tr>
<td>III</td>
<td>Multidisciplinary rehab team</td>
<td>IVI</td>
<td></td>
</tr>
</tbody>
</table>

Low vision aids training: 4 trials (2 level I, 2 Level II)

<table>
<thead>
<tr>
<th>Level</th>
<th>Training Content</th>
<th>Outcome Measures</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>5 hours of training on the use of aids and compensation skills</td>
<td>NEI-VFQ-25</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>Training with vision aids and one home visit vs. independent living skill intervention</td>
<td>NEI-VFQ-25</td>
<td></td>
</tr>
</tbody>
</table>

Multi-component patient education and training: 4 trials (3 level I, 1 level II)

<table>
<thead>
<tr>
<th>Level</th>
<th>Education/Training</th>
<th>Outcome Measure</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>6-week self-management program</td>
<td>NEI-VFQ-25</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>12-week health education program</td>
<td>ADL staircase</td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>8-week self-management program</td>
<td>Activity cart sort test</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>5-week psychosocial intervention</td>
<td>Modified MAI</td>
<td></td>
</tr>
</tbody>
</table>
Single service or training:  
5 trials (1 level I, 1 level II, 3 level III)

<table>
<thead>
<tr>
<th>Level</th>
<th>Service/ training</th>
<th>Outcome measure</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Prisms²</td>
<td>NEI-VFQ-25, MLVAI</td>
<td>✗</td>
</tr>
<tr>
<td>II</td>
<td>Eccentric viewing training at home for 8 sessions³</td>
<td>MLVAI</td>
<td>✡</td>
</tr>
<tr>
<td>III</td>
<td>Lighting adjustment at home²</td>
<td>Self-report tasks</td>
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</tr>
<tr>
<td>III</td>
<td>Home visits by service teachers²</td>
<td>Scaled interview questionnaire</td>
<td></td>
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</tbody>
</table>


Limitations of reviewed studies

- No consistent functional outcome measures of low vision  
  - Hard to compare effects between different interventions
- Lack of detail about training program in the publication  
  - Hard to replicate the program for research or practice
- Lack of long-term follow ups  
  - Age-related vision loss is degenerative
  - Need longitudinal studies

Summary of key findings

- What works:  
  - Multi-component education program for multiple sessions
  - Multidisciplinary team, and geared toward personal goals
  - Visual aids training and compensation skills for multiple sessions
  - Eccentric viewing training at home for multiple sessions
- What may not work:  
  - Educate the family but do not involve family in helping the client
  - Only provide spectacles
  - Home visits without defined purposes or low vision training
- Training that may not need:  
  - Orientation and mobility training at home

Implications for practice

- Trials were reported from different geographic areas (i.e. Canada, Sweden, UK, New Zealand) and service systems (i.e. VA)  
  - How do we tailor the training to our service?
  - Contact trial authors to get training detail is highly encouraged
- Multiple components  
  - Information & resources about low vision
  - Problem-solving skills
  - Psychosocial component
- Multiple sessions  
  - Allowing time to practice and adapt new devices and skills

Implications for education (OT students)

- Skills to teach patients using low vision devices  
  - How to explain the use of different devices?
  - How to know patient’s learning style?
  - How to lead small group intervention?
- Advocate OT’s role in the low vision rehab team

Implications for research

- Clearly define intervention content in a separate publication
- Quantify the dose of OT intervention in rehab team  
  - Number of visits, duration of visits, number of tasks trained...
- Need longitudinal studies to determine the duration of follow up service
Acknowledgement

- AOTA
  - Deborah Lieberman
  - Marian Arbesman

Outcome measures

- FAQ- Functional Assessment Questionnaire.
- FVPT- The Functional Vision Performance Test.
- FIMBA- Functional Independence Measure for Blind Adults.
- IVI- Impact of Vision Impairment.
- MAI- Multilevel Assessment Instrument.
- MLVQ- Manchester Low Vision Questionnaire.
- NEI-VFQ-25- Twenty-five-item National Eye Institute Visual Functioning Questionnaire.
- LVQOL-Low Vision Quality of Life questionnaire.