Psychological or Emotional Impairment after Stroke

What is the evidence for the effectiveness of interventions to improve occupational performance for those with psychological and/or emotional impairment after stroke?

Mary W. Hildebrand, OTD, OTR/L
Sarah Timmons, OTS
East Carolina University
Department of Occupational Therapy

Guided Research Process

- AOTA Collaboration
  - Marian Arbesman, PhD, OTR/L
  - Deborah Lieberman, MHSA, OTR/L, FAOTA
- Focused on Level I – III studies published between 2003 and 2012

Significance of the Review Question

- Psychological and/or emotional impairment occur in 30 – 50% of persons post-stroke (Roger, Go, Lloyd-Jones, Benjamin, Berry, Borden, et al., 2012)
- Most common conditions include:
  - Depression
  - Anxiety disorders
  - Psychoses
  - Post-stroke dementia (Falk-Kessler, 2011)

Search Process & Results

- 2261 articles reviewed
- 41 articles met criteria
- Five categories identified

<table>
<thead>
<tr>
<th>Categories</th>
<th>I</th>
<th>II</th>
<th>III</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Exercise</td>
<td>15</td>
<td>2</td>
<td>17</td>
<td></td>
</tr>
<tr>
<td>2. Behavioral Interventions</td>
<td>9</td>
<td>7</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>3. Care Coordination</td>
<td>7</td>
<td>6</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>4. Education</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>5. Community Rehabilitation</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>39</td>
<td>2</td>
<td>0</td>
<td>41</td>
</tr>
</tbody>
</table>

Results - Exercise

- Level I: Moderate evidence
  - Strengthening intervention—HRQOL-Mental component at 10-wks (Olney, Nymark, Brouwer, Culham, Day, Heard, et al., 2006)
  - ROM intervention—Depression measure (Yang, Chen, Wu, & Lin, 2007)
- Level I: Insufficient evidence
  - Progressive resistance training—Mental health or depression measures (Cudina, Lohrke, Swan, Phillips, Stein, Frontera, et al., 2004; Sivin, Giele, Taylor, Dodd, Jespersen, & Jouett, 2009)
  - Tai Chi—Mental health or depression measures (Taylor-Phill & Cook, 2017)
### Results - Exercise

- **Level I: Insufficient evidence**
  - Very early mobilization—Depression & anxiety measures at 7 days (Cumming, Collier, Thrift, & Bernhardt, 2008)
  - Other exercise programs—Intensive exercise, ergometry, bilateral arm exercises, walking, treadmill, home based exercise—Short term improvement on depression & anxiety measures, but not long term (Haghtoren, Gouravan-Khedron, Lindstrom, & Wester, 2013; Li, Staudenli, Richards, Rigler, Pena, Reker, et al., 2016; Langhammer, Stanghelle, & Lindmark, 2008; Lemmon, Cianco, Gaffney, Stephenson, & Biale, 2005; Reed, Greg, Cunningham, Lewis, Dinan, & Saum, et al., 2007; Morden, Rap, Gaffney, Oligo, Cole, & MacVicker, 2008; Salbach, Maye, Robichaud-Ekstrand, Hanley, Richards, & Wood-Dauphinee, 2005; Smith & Thompson, 2008; Staudenli, Duncan, Pena, Reker, Min, Li, et al., 2005)

- **Level II: Insufficient evidence**
  - Exercise & recreation activities (Rand, Eng, Liu-Antinbrowne, & Taweethy, 2010)
  - Community based exercise (Stuart, Benn馥nd, Mecko, Taviani, Segaren, Mayer, et al., 2008)

### Results - Behavioral Interventions

- **Level I: Moderate evidence**
  - Motivational interviewing—Depression measures (Waltzke, Autin, Deane, Dickmann, & Light, 2007)
  - Problem-solving therapy—CG 2.2 times more likely to develop depression than IG (Robinson, Jorge, Moran, Azcon, Soladon, Smoll, et al., 2000)
  - Psychosocial/behavioral intervention + Antidepressant med—Reduces depression (Mitchell, Vieth, Beaker, Buxton, Cain, Fren, et al., 2009)
  - Knowledge & behavior therapy—Depression & QOL (Cheng, Zhang, Xia, & Chen, 2011)

### Results - Care Coordination Interventions

- **Level I: Moderate evidence**
  - Leisure education program—Depression reduced (Desrochers, Noreau, Richelle, Carnival, Fortin, Vanboggs, et al., 2007)
  - Stroke education program—Reduction in anxiety, but not depression (Smith, Foner, & Young, 2004)

- **Level I: Insufficient evidence**
  - Chronic Disease Self-Management education—No difference on mood QOL measure (Kendall, Calabrosi, Kupers, Fronter, Bui, & Charke, 2006)
  - Stroke information package, Computer-generated education package—no reduction in anxiety and depression (Clark, Rubensac, & Wilmot, 2003; Hoffman, McKenzie, Wilmot, & Read, 2007)

### Results - Education Interventions

- **Level I: Moderate evidence**
  - Care coordination in the community—HRQOL & depression measures (Mayo, Nadeau, Ahmed, White, Gost, Huang, et al., 2008)
  - Family support Organizer—Depression or anxiety scores (Lincoln, Francis, Lily, Sharren, & Summerfield, 2003; Tilling, Coshel, McIntosh, Daneski, & White, 2005)

### Results - Community Rehabilitation

- **Level I: Moderate evidence**
  - Intensive vs. non-intensive home based rehabilitation (greater number of rehab team visits)—HRQOL, anxiety, & depression improved (Ryan, Endres, & Rhygi, 2004)

- **Level I: Insufficient evidence**
  - Community-based OT—HRQOL mental health measures (Egan, Kasted, Laporte, Molcafe, & Carter, 2007)
  - Community-based OT intervention to improve mobility—psychological well-being measure (Gupta, Gladman, Aver, Walker, Dry, & Goven, 2004)

### Limitations of Reviewed Studies

- Wide variety of types and severity of stroke, participant ages, time post-stroke, setting (acute, rehab, community)
- Several studies had small sample sizes
- Studies excluded persons who had aphasia and cognitive deficits
- Intervention protocols were often not described
- Treatment fidelity was not addressed
- Most interventions were not implemented by OT
- Many studies used depression, anxiety, or HRQOL measures as secondary measures
- Measures of depression, anxiety, and HRQOL were self-report
Implications for Practice: Summary

- Occupational therapists are uniquely qualified to address both psychological and physical impairments post-stroke.

- Evidence for effective interventions includes:
  - Moderate evidence for motivational interviewing, problem-solving therapy, and behavioral interventions
  - OT can deliver these with specialized training and delivered within the scope of practice
  - Moderate evidence for strengthening and ROM
  - OT should do this in occupation-based activities
  - Mixed evidence for inpatient care coordination and community outreach
  - OT can work on the team to develop and implement programs
  - Moderate evidence for leisure education and stroke education
  - OT is highly qualified to deliver
  - Moderate evidence for more intensive home-based rehabilitation
  - OT should recommend home health OT and greater number of home rehab visits

Implications for Research

- More research is needed with OT specific interventions
- Must use a well-defined protocol, treatment manual
- Must measure treatment fidelity to ensure adherence to the protocol and differentiation from usual care
- Include participants with aphasia and cognitive deficits

This presents an opportunity for occupational therapists to perform much needed research!

Thank you!

Mary W. Hildebrand, OTD, OTR/L
Assistant Professor
East Carolina University
College of Allied Health Sciences
Department of Occupational Therapy
3305H HSB
Greenville, NC 27834
(252) 744-6191
hildebrandm@ecu.edu