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?

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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)

Consequences of psychological and/or emotional impairment post-stroke:

- Impedes rehabilitation
- Impairs physical function
- Impairs cognitive function
- Increases stress on caregivers
- Increased risk of death
- Increased risk of suicide
- Greater morbidity
- Increased dependency
- Higher use of drugs and alcohol
- Increases use of health resources
- Poor compliance with treatment of co-morbidities

Search Process & Results

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

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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 (Cutuli, Licht leisure, Stein, Phillips, Stein, Perkerson, et al., 2004; Siro, Galea, Taylor, Dobb, Jepson, & Joubert, 2008)
  - Tai Chi—Mental health or depression measures (Taylor-Piliae & Coull, 2011)
Results - Exercise

**Level I: Insufficient evidence**
- Very early mobilization—Depression & anxiety measures at 7 days (Cumming, Collier, Thrift, & Bernhardt, 2006)
- 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 (Holmgren, Grauer-Hedström, Lindström, & Wester, 2010; Li, Studenski, Richards, Rigler, Pena, Reker, et al., 2006; Langhammer, Stanghelle, & Lindmark, 2008; Lemon, Carr, Goffrey, Stephenson, & Blake, 2008; Metcalf, Cunningham, Lewis, Dinnen, gaal, et al., 2007; Morris, van Wyk, John, Ogston, Cole, & MacNeil, 2006; Salbach, May, Rotich-Edwards, Hanley, Richards, & Wood-Draper, 2005; Smith & Thompson, 2008; Studenski, Duncan, Peters, Reker, Min, Li, et al., 2005)

**Level II: Insufficient evidence**
- Exercise & recreation activities (Rand, Eng, Liu-Ambrose, & Taweety, 2010)
- Community based exercise (Stuart, Bernarelli, Macko, Taviani, Segaren, Mayer, et al., 2009)

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

Results - Behavioral Interventions

**Level I: Moderate evidence**
- Motivational interviewing—Depression measures (Kubik, Avon, Dieke, Dickman, Jack, Lightbody, et al., 2007)
- Problem-solving therapy—CG: 2.2 times more likely to develop depression than IG (Robinson, Jorge, Mares, Avon, Sokoloff, Small, et al., 2000)
- Psychosocial/behavioral intervention + Antidepressant med—Reduces depression (Mitchell, Veith, Becker, Bazaz, Cain, Price, et al., 2009)
- Knowledge & behavior therapy—Depression & QOL (Chang, Zhang, Xia, & Chen, 2011)

**Level I: Insufficient evidence**
- Behavior modification & risk factor control, life-review therapy, control cognitions, CBT—Reducing depression or anxiety (Makulena, Craig, McAuliffe, Langham, & Ellis, 2009; Ellis, Rodger, McAuliffe, Langham, 2005; Davis, 2004; Johnston, Bonelli, Joice, Pollard, Morrison, France, et al., 2007; Lincoln & Harmegagen, 2010)

Results - Care Coordination Interventions

**Level I: Mixed evidence**
- Significant difference found between IG and CG
  - Inpatient care coordination—Mental QOL & depression scores improved (Cathcart, 2006)
  - Post-discharge support and outreach—Anxiety & emotional distress scores significantly lower (Bose, 2004; Burton & Gibson, 2005)
- No significant difference found between IG and CG
  - Care coordination in the community—HRQOL & depression measures (Mayo, Nadesu, Ahmed, White, Grist, Huang, et al., 2008)
  - Family support Organizer—Depression or anxiety scores (Lincoln, Franci, Liley, Dreena, & Summerfield, 2003; Tilling, Cook, Mcallan, Danesi, & 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, Endesdy, & Rigny, 2004)

**Level I: Insufficient evidence**
- Community-based OT—HRQOL mental health measures (Egan, Kasner, Lepore, Melcalf, & Carter, 2007)
- Community-based OT intervention to improve mobility—pschologica well-being measure (Gopan, Gladman, Avery, Walker, Dyne, & Gozum, 2004)
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.
  - Moderate evidence for strengthening and ROM.
  - OT should deliver these with specialized training and delivered with scope of practice.
  - OT can deliver these 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!

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