**A Systematic Review of Multifaceted Interventions for Improved Community Participation**

**October 29, 2018**

Presenters: Judith M.S. Gross, Jean Hall, Amalia Monroe-Gulick, Chad Nye, Joann Starks, and Kathleen Murphy

[https://ktdrr.org/training/webcasts/webcast63/index.html](http://ktdrr.org/training/webcasts/webcast63/index.html)

**Slide 1: Cover slide**

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**Cover slide template:** White page with black text. Blue bar at the left of page.

**Slide 2: A Systematic Review of Multifaceted Interventions for Improved Community Participation**

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Bottom right page is the logo for The Research and Training Center on Promoting Interventions for Community Living (RTC/PICL).

**Slide 3: Agenda**

1. Why conduct a systematic review or meta-analysis?
2. How did partnerships support this research?
3. What did we do?
4. How did we do it?
5. What did we learn?
6. What are the implications?
7. Q & A

**Slide 4: Why conduct a systematic review or meta-analysis?**

**Slide 5: Systematic Review**

* Is a formal, systematic and structured approach to reviewing all relevant and best available literature on a specific topic/outcome of interest
  + Transparent procedures defined in advance
  + Replicable
  + Minimize bias
* Provides an overview of the current state of the research
* May be qualitative or quantitative

**Slide 6: Systematic Review**

* Studies included in a review are screened for quality, so that the findings of a large number of studies can be combined.
* Peer review is a key part of the process  
  *From the Campbell Collaboration:* What is a systematic review? <https://campbellcollaboration.org/research-resources/writing-a-campbell-systematic-review/systemic-review.html>

**Slide 7: A Systematic Review Must Have:**

* Clear inclusionary/exclusionary criteria
* An explicit search strategy
* Systematic coding and analysis of included studies
* Meta-analysis (where possible)  
  *From the Campbell Collaboration:* What is a systematic review? <https://campbellcollaboration.org/research-resources/writing-a-campbell-systematic-review/systemic-review.html>

**Slide 8: Meta-analysis**

* Statistical analysis of the impact of the outcome of interest
* By combining the samples of the individual studies, the overall sample size is increased, thereby improving the statistical power of the analysis as well as the precision of the estimates of treatment effects.

**Slide 9: How did partnerships support this research?**

**Slide 10: Key Partners**

* University of Kansas
* Research & Training Center on Promoting Interventions for Community Living researchers
* University librarian
* Research assistant
* Funding support

**Slide 11: Key Partners**

American Institutes for Research, Center on Knowledge Translation for Disability and Rehabilitation Research (KTDRR)

Offers in-kind support to NIDILRR grantees doing systematic review/research syntheses

In this case:

* Statistical consultant
* Research assistant
* Technical support

**Slide 12: What did we do?**

**Slide 13: Two studies in this Systematic Review**

* Meta-analysis
* Determined effectiveness of multi-faceted interventions
* Analyzed 15 quantitative articles
  + Qualitative Analysis
* Determined common components and characteristics of multi-faceted interventions
* Analyzed 20 articles - quantitative (17) and qualitative (3)

**Slide 14: How did we do it?**

**Slide 15:** **Defining the Outcome**

* Worked with RTC/PICL Scientific-Consumer Advisory Panel to clearly define target for review
* Defined key terms: disability, multifaceted, community participation outcomes, community-based settings
* Determined inclusionary and exclusionary criteria

**Slide 16: Defining the Participants**

* 18 years of age or older
* With one or more disabilities
* Who exited the secondary education/high school setting and services

**Slide 17: Conducting the Search**

* University of Kansas librarian and researcher collaboration
* Determined appropriate databases for the search – reviewed 17 - selected 3 for peer-reviewed (1 health related, 1 citation index, 1 subject-specific) and 2 for grey literature
* Used different controlled vocabulary and search mechanisms as appropriate for each database
* Used limiters to help manage quantity of results, minimize duplicative results, and focus on target population

**Slide 18: Reviewing the Articles**

* At least two researchers reviewed articles at each stage
  + Abstract and title (4,742)
  + Full-text review for initial criteria (186)
  + Full-text methodological quality review (37)
* Our search located 15 eligible studies measuring outcomes related to community participation

**Slide 19: Conducting the Analysis**

* Used Comprehensive Meta-Analysis Software (CMA)
* A total of 74 effect sizes were calculated across the 15 studies
* An aggregate analysis was conducted.
* An analysis of outcomes at the study level was conducted with positive treatment effects found for the outcomes of employment, mental health, adult education, and quality of life.
* Two other studies had met criteria for study inclusion but not the criteria for data analysis.

**Slide 20: What did we learn?**

**Slide 21: Participants**

* Most had a disability that makes executive functioning a challenge
  + Traumatic Brain Injury (2)
  + Mental Health (7)
  + Aging (4)
  + Developmental Disability (1)
  + Not reported (1)
* Many multifaceted interventions had a cognitive coaching component
* Countries represented:
* U.S. (10), Italy (1), China (1), Australia (1), and Germany (2)

**Slide 22: Study Characteristics**

* 15 studies published 2000-2014
* 74 effect sizes computed (mean=5, range 1 to 22)
* Length of treatment (mean=27 weeks, range=4 to 105 weeks)

**Slide 23: Aggregated Study Effects**

A data table with 5 columns and 18 rows is below, that displays the combined outcomes for included studies in the systematic review.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Combined outcomes for each included study. | | | | |
| Study | Hedges' g | Lower Limit | Upper Limit | p-value |
| Tsemberis, 2000 | 0.228 | 0.092 | 0.363 | 0.001 |
| Birk, 2004 | -0.387 | -1.262 | 0.488 | 0.386 |
| Cook, 2005 | 0.162 | 0.052 | 0.272 | 0.004 |
| McGurk, 2007 | 0.917 | 0.303 | 1.531 | 0.003 |
| Onor, 2007 | -0.035 | -0.988 | 0.919 | 0.943 |
| Bell, 2008 | 0.063 | -0.396 | 0.522 | 0.788 |
| Flemming, 2009 | -0.432 | -1.087 | 0.223 | 0.196 |
| Gimm, 2011 | 0.065 | -0.011 | 0.141 | 0.095 |
| Guttman, 2009 | 1.144 | 0.467 | 1.821 | 0.001 |
| Kurz, 2009 | 0.362 | -0.421 | 1.146 | 0.364 |
| Mirza, 2009 | 0.565 | 0.009 | 1.031 | 0.018 |
| Tsang, 2009 | 0.854 | 0.459 | 1.248 | 0.000 |
| Szanton, 2011 | 0.069 | -0.567 | 0.706 | 0.831 |
| Ferguson, 2012 | 0.798 | -0.046 | 1.642 | 0.064 |
| Twamley, 2014 | 0.345 | -0.319 | 1.009 | 0.913 |
| Overall Effect | 0.280 | 0.067 | 0.493 | 0.010 |

**Slide 24: Potential Independent Variables:**

* Design Characteristics
  + - Type of Design
    - Type of Analysis
* Treatment Characteristics
  + - Length of Treatment
* Outcome Characteristics
  + - Employment (n=5)
    - ADL (n=3)
    - Mental Health (n=2)
    - Education/Learning Training (n=1)
    - Quality of Life (n=2)
    - Autonomy (n=1)
    - Independent Living, Social Skills, Community Participation (n=1)

**Slide 25: Results for Employment**

A data table with 5 columns and 8 rows is below, that displays the employment outcome effect sizes for studies using a randomized controlled trial design.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Employment Outcome Effect Sizes for Studies Using RCT design | | | | | |
| Study | Hedges' g | Lower Limit | Upper Limit | p-value |
| McGurk, 2007 | 0.917 | 0.3 | 1.531 | 0.003 |
| Bell, 2008 | 0.109 | -0.35 | 0.568 | 0.639 |
| Mirza, 2009 | 0.565 | 0.01 | 1.031 | 0.018 |
| Tsang, 2009 | 0.891 | 0.5 | 1.248 | 0.001 |
| Gimm, 2011 | -0.121 | -0.2 | -0.042 | 0.003 |
| **Overall Effect** | 0.444 | -0.06 | 0.949 | 0.085 |

**Slide 26: Results for Employment**

A data table with 6 columns and 11 rows is below, that displays the employment outcome associated with the method of analysis for studies in the systematic review.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Employment Outcome Associated with Method of Analysis | | | | | |
|  |  |  |  |  |  |
| Method of Analysis | Study | Hedges' g | Lower Limit | Upper Limit | p-value |
| ITT | Bell, 2008 | 0.109 | -0.349 | 0.568 | 0.639 |
| ITT | Gimm, 2011 | -0.121 | -0.200 | -0.042 | 0.003 |
|  | **Combined ITT** | -0.115 | -0.192 | -0.370 | 0.004 |
|  |  |  |  |  |  |
| TOT | McGurk, 2007 | 0.917 | 0.303 | 1.531 | 0.003 |
| TOT | Mirza, 2009 | 0.565 | 0.009 | 1.031 | 0.018 |
| TOT | Tsang, 2009 | 0.891 | 0.497 | 1.248 | 0.001 |
|  | **Combined TOT** | 0.786 | 0.516 | 1.056 | 0.001 |

**Slide 27:** **Results for Employment**

A data table with 6 columns and 11 rows is below, that displays the employment outcome associated with the length of treatment for studies in the systematic review.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Employment Outcome Associated with the Length of the Treatment | | | | |
|  |  |  |  |  |  |
| Length of Treatment | Study | Hedges' g | Lower Limit | Upper Limit | p-value |
| 1-10 weeks | Mirza, 2009 | 0.565 | 0.009 | 1.031 | 0.018 |
| 1-10 weeks | McGurk, 2007 | 0.917 | 0.303 | 1.531 | 0.003 |
| **Combined 1-10 weeks** | | 0.694 | 0.322 | 1.065 | 0.001 |
|  |  |  |  |  |  |
| 20+ weeks | Bell, 2008 | 0.109 | -0.349 | 0.568 | 0.639 |
| 20+ weeks | Tsang, 2009 | 0.891 | 0.497 | 1.248 | 0.001 |
| 20+ weeks | Gimm, 2011 | -0.121 | -0.2 | -0.042 | 0.003 |
| **Combined 20+ weeks** | | 0.277 | -0.355 | 0.909 | 0.390 |

**Slide 28: Results for Employment**

A data table with 5 columns and 6 rows is below, that displays the employment outcome effect sizes for Exp vs Comp for studies in the systematic review.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Employment Outcome Effect Sizes for Exp vs Comp | | | | |
| Study | Hedges' g | Lower Limit | Upper Limit | p-value |
| Cook, 2005 | 0.162 | 0.052 | 0.272 | 0.004 |
| Ferguson, 2012 | 0.795 | -0.05 | 1.641 | 0.066 |
| Flemming, 2009 | -0.699 | -1.36 | -0.04 | 0.038 |
| Overall Effect | 0.059 | -0.59 | 0.704 | 0.857 |

**Slide 29:** **Results for Employment**

* Follow up assessment was conducted for 2 studies using different post treatment measurement times – one study had significant effects while the other was non-significant.

**Slide 30: Results for Quality of Life**

* 2 studies reported QoL outcomes
  + 1 RCT Exp vs Ctl yielded a significant treatment effect in aging participants

(g= 0.693, p=0.003)

* + 1 QED Exp vs Comp yielded a non-significant treatment effect for TBI participants (g= 0.195, p=0.561)

**Slide 31: Results for Mental Health**

* 2 RCT Exp vs Ctl studies assessed mental health outcomes in aging participants (g= - 0.738, p=0.026) suggesting the control group performed better than the treated group

**Slide 32: Results for Adult Education**

* 1 QED comparison study assessed adult learning for social skills and tasks and interpersonal skill development outcomes in psychiatric disabled group
  + yielding a significant group difference (g=1.144, p. <0.001).

**Slide 33: Non-significant Outcomes**

* Activities of Daily Living (ADLs/IADLs)
* Autonomy
* Independent Living
* Social Skills
* Community Activities

**Slide 34: What are the implications?**

**Slide 35: Research**

* Limited support for effectiveness of multifaceted interventions suggests need for more research to determine effectiveness broadly as well as specifically in relation to community participation of adults with disabilities.
* A narrowed focus on outcomes for targeted groups of adults with similar disabilities may yield greater insight into the potential effectiveness of multifaceted interventions.

**Slide 36: Practice**

* Consider focusing practice on use of multifaceted interventions with focused outcomes (e.g., employment) and targeted populations (e.g., TBI, mental health, aging)

**Slide 37: Questions and Comments?**

Thanks!

**Slide 38: Evaluation**

Please complete this brief evaluation:

<https://www.surveygizmo.com/s3/4648838/Eval-KS-Systematic-Review>

**Slide 39: Contact Information**

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