

# A Systematic Review of Multifaceted Interventions for Improved Community Participation

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Center on  
**KNOWLEDGE TRANSLATION FOR  
DISABILITY & REHABILITATION RESEARCH**

at American Institutes for Research ■

# A Systematic Review of Multifaceted Interventions for Improved Community Participation

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The Research and Training Center on  
Promoting Interventions for Community Living

# 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

# Why conduct a systematic review or meta-analysis?

# 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

# 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>

# 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>

# 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.



How did  
partnerships  
support this  
research?

# Key Partners

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

# 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

# What did we do?

# 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)

# How did we do it?

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# 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

# Defining the Participants

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



# 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

# 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

# Conducting the Analyses

- 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.

# What did we learn?

# 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)

# 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)

# Aggregated Study Effects

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

# 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)



# Results for Employment

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
<b>Overall Effect</b>	0.444	-0.06	0.949	0.085

# Results for Employment

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
	<b>Combined ITT</b>	-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
	<b>Combined TOT</b>	0.786	0.516	1.056	0.001

# Results for Employment

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
<b>Combined 1-10 weeks</b>		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
<b>Combined 20+ weeks</b>		0.277	-0.355	0.909	0.390

# Results for Employment

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

# 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.

# 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 ( $g= 0.195$ ,  $p=0.561$ )

# 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

# 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 ( $g=1.144$ ,  $p. <0.001$ ).



# Non-significant Outcomes

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

# What are the implications?

# 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.

# Practice

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

# Questions and Comments?

# Thanks!

# Evaluation

Please complete this brief evaluation:

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

 [www.ktdrr.org](http://www.ktdrr.org)

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