Effectiveness of Motivational Interviewing Interventions for Pediatric Health Behavior Change: A Meta-Analytic Review

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Introduction

- The use of Motivational Interviewing is increasing
  - Combines client-centered and cognitive-behavioral strategies
  - Often considered an adjunct to other therapies
  (Miller & Rollnick, 2002)

- Primarily evaluated for adolescent substance use

- Use expanding to other health behaviors
  - Sexual Risk Behavior
  - Diabetes Disease Management
  - Diet/Physical Activity
Rationale

- Literature regarding effectiveness of MI for youth has not been reviewed using meta-analytic methods.

- Study designed to:
  - Summarize efficacy findings across pediatric health behaviors.
  - Examine potential moderators of effectiveness:
    - Treatment dose
    - Interventionist training
    - Stand-alone or combination treatment.
Exploratory Aim

- To examine the domain-specific efficacy of MI interventions
  - Substance Use
  - Other Health Behaviors
    - Diet/Physical Activity
    - Sexual Health Behavior
    - Diabetes Management
Method

- Literature searches of electronic databases
  - PsycINFO
  - PUBMED/MEDLINE
  - Educational Resources Information Center
- Manual reference searches of reviews
- Motivational Interviewing Network of Trainers listserv request
**Method (continued)**

- **Inclusion/Exclusion Criteria**
  - Primary outcome = Health behavior change
    - Health Promoting *or* Health Risk behavior
  - Upper age limit was not greater than 22
  - Reported statistics sufficient to compute Effect Size
  - Peer-reviewed

- **35 Studies Included**
Method

- **Decision Rules**
  - Multiple outcomes from same study aggregated
  - Effects weighted by sample size
  - Outcome most consistent with *behavior change* selected (i.e., not prevention)

- **Statistical Approach**
  - Conversion to Cohen’s *d* values
  - Confidence Intervals
  - *Q* statistic used to examine homogeneity
Sample Characteristics

- **Target Behaviors**
  - 25 studies examined controlled substance use
    - 14 marijuana use
    - 12 alcohol use
    - 11 tobacco use
    - 5 street drugs
  - 10 studies examined non-substance use behavior
    - 4 diet and physical activity
    - 3 diabetes management
    - 3 sexual risk behavior
Sample Characteristics

- **Intervention Target Age**
  - 22 adolescent (13-22)
  - 3 child (≤ 12 years)

- **Treatment Length**
  - 18 studies: 1 MI session
  - 17 studies: 2-9 MI sessions

- **5 studies provided another intervention following MI**

- **Outcome Data**
  - 20 studies: Pre-Post data only
  - 15 studies: Follow-up data
Results: Overall Effectiveness

- Homogeneity of Effect Sizes
  - Non-significant Q statistic

- Overall Effectiveness
  - Small but Significant Effects
  - mean $d = .234$, 95% CI $= .171-.296$, $n = 35$
Results: Health Behavior Outcome

- **Substance use interventions alone**
  - mean $d = .203$, 95% CI = .133-.272, $n = 27$

- **Non-substance use interventions**
  - mean $d = .361$, 95% CI = .220-.502, $n = 8$

- **Non-significant trend toward greater effectiveness for non-substance use interventions**
Results: Interventionist Training Level

- Master’s level training or higher
  - mean $d = .335$, 95% CI = .212-.458, $n = 10$

- Sub master’s level training
  - mean $d = .209$, 95% CI = .126-.293, $n = 25$

- Non-significant trend
  - Master’s + > sub-master’s training
Results: Follow-up Analyses

- 21 studies included follow-up data (1-24 months post-treatment)
  - mean $d = 0.253$, $95\%$ CI:$0.153-0.353$, $n = 21$

- Nearly identical to post-treatment results
  - Interventions maintained effectiveness over time
  - Limitation: could not control for time interval post-treatment
Discussion

- Evidence for overall effectiveness
  - Results comparable to meta-analyses with adult samples (Burke, et al., 2003; Rubak, et al., 2005)

- MI equally, potentially more effective for non-substance use behavior
  - Addictive behavior may be more intractable (Dunn, DeRoo, & Rivara, 2001)
Moderator Analyses

- Trend toward greater effectiveness with more training
  - MI-specific or General Therapy Skills? (Miller and Rose, 2009)
  - MI training has seldom been monitored

- One session and multi-session interventions equally effective
  - Even brief MI may be sufficient
Maintenance

- Effect size at follow-up slightly higher than post-treatment effect size
  - Consistent with evidence from adult literature (Ball et al., 2007)

- 60% of included studies conducted follow-up assessments
Limitations

- Follow-up analyses did not account for non-equivalent follow-up duration
- Limited cultural/ethnic diversity in many included studies
- Lack of robust controls
Future Directions

- Randomized Clinical Trials
  - Comparisons to robust controls (e.g., other supportive therapies)
- Improved treatment fidelity monitoring
  - Existing coding systems
- Additional studies examining behavior targets other than substance use
  - Nutrition/physical activity
  - Sexual risk behavior
  - Adherence?
Conclusion

- MI is a broadly efficacious treatment for adolescent health behavior change

- Evidence for efficacy continues to accumulate

- Long-term benefits are encouraging

- Even brief (e.g. 1 session) treatment appears to be effective