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Taking the Long View
Overview

- **Background:** Meta-analysis – what it is and what it isn’t
- **Background:** Meta-path-analysis and the conditional process model
- **Background:** Toward a Theory of Motivational Interviewing
- **The Meta-Analytic Study 1:** Magill et al., 2014
- **The Meta-Analytic Study 2:** Just the take home

- **Long view 1:** Technical Hypothesis
- **Long view 2:** Relational Hypothesis
- **Long view 3:** A technical \( a \) path conditioned on relational factors
- **Long view 4:** A technical \( b \) path conditioned on client treatment seeking status

- **Conclusions and acknowledgements**
Background: Meta-analysis – what it is and what it isn’t

- In 1977, Meta-analysis told us psychotherapy does work;
- In 1995, Meta-analysis topped the Evidential Hierarchy.
- But meta-analysis is a tool for research synthesis;
- Knowledge derived is about relationships across studies, not relationships within individuals.
Background: Meta-analysis – what it is and what it isn’t

- ‘Apples and Oranges’ are bad and good;
- Tests for statistical heterogeneity tell us if the population effect size has been specified.
- Using a random effects model for the pop. effect size will give us flexibility;
- A random effects model assumes both known and unknown sources of variability.
- So, if heterogeneity of the random effects effect size is observed, informative moderators can be tested.
Background: Meta-path-analysis and the conditional process model

- In 1994 Eagly & Wood described the approach of aggregate path analysis.

- The method extends the traditional bivariate model of meta-analysis to multiple links in a causal chain.

- When a given path effect size is heterogeneous, moderators of effect variability can be tested.

- When this method is used in a meta-path-analysis, we are referring to a meta-conditional-path-model.
Toward a Theory of Motivational Interviewing

Training In MI

Therapist Empathy and MI Spirit

Therapist Use of MI-Consistent Methods

Client Preparatory Change Talk and Diminished Resistance

Commitment to Behavior Change

Behavior Change

Miller & Rose (2009)
Testing the Theory of MI 1: The Technical Model of MI Efficacy

Notes. A 7 Correlational paths examined. B Measures were within-session frequencies of observed therapist and client behaviors. C A sample of studies examined a composite measure of change and sustain talk.
The Technical Hypothesis of Motivational Interviewing: A Meta-Analysis of MI’s Key Causal Model

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Objective: The technical hypothesis of motivational interviewing (MI) posits that therapist-implemented MI skills are related to client speech regarding behavior change and that client speech predicts client outcome. The current meta-analysis is the first aggregate test of this proposed causal model. Method: A systematic literature review, using stringent inclusion criteria, identified 16 reports describing 12 primary studies. We used review methods to calculate the inverse-variance-weighted pooled correlation coefficient for the therapist-to-client and the client-to-outcome paths across multiple targeted behaviors (i.e., alcohol or illicit drug use, other addictive behaviors). Results: Therapist MI-consistent skills were correlated with more client language in favor of behavior change (i.e., change talk; $r = .26$, $p < .0001$), but not less client language against behavior change (i.e., sustain talk; $r = .10$, $p = .09$). MI-inconsistent skills were associated with less change talk ($r = -.17$, $p = .001$) as well as more sustain talk ($r = .07$, $p = .009$). Among these studies, client change talk was not associated with follow-up outcome ($r = -.06$, $p = .41$), but sustain talk was associated with worse outcome ($r = -.24$, $p = .001$). In addition, studies examining composite client language (e.g., an average of negative and positive statements) showed an overall positive relationship with client behavior change ($r = .12$, $p = .006$; $k = 6$). Conclusions: This meta-analysis provides an initial test and partial support for a key causal model of MI efficacy. Recommendations for MI practitioners, clinical supervisors, and process researchers are provided.

Keywords: motivational interviewing, change talk, sustain talk, meta-analysis, therapy process

Therapist MI-Consistent Behaviors

Therapist MI-Inconsistent Behaviors

Proportion MICO

Client Change Talk

Client Sustain Talk

Proportion Change Talk

Risk Behavior Outcomes K = 39

Therapist Empathy and MI Spirit Average versus good

Client Treatment Seeking Status Yes versus no

Notes. A 12 Correlational paths examined. B Measures were within-session frequencies of observed therapist and client behaviors. C Added proportion measures (proportion MICO; proComplex Reflection; Reflection to Question ratio; proportion change talk; MISC, Houck et al., 2013; Miller et al., 2003; 2008).
Results 1: Partial Support for the Technical Model of MI Efficacy

- Therapist MI-Consistent Skills
  - $k = 25$
  - Proportion MI-Consistent
    - $k = 22$
  - $r = 0.16^*$

- Therapist MI-Inconsistent Skills
  - $k = 24$
  - Proportion MI-Consistent
    - $k = 22$
  - $r = 0.11^*$

- Client Change Talk
  - $k = 24$
  - $r = 0.40^{**}$

- Client Sustain Talk
  - $k = 24$
  - $r = 0.20^{**}$

- Proportion Change Talk
  - $k = 23$
  - $r = 0.55^{**}$

- Risk Behavior Outcomes

Notes. $k =$ Number of studies; $^{**} p < .001$; $^* p < .01$
Taking the Long View
Long view 1: Technical Hypothesis

- The 2017 meta confirmed most paths supported in previous reviews by Magill et al., 2014, Romano & Peters, 2016, and Pace et al., 2017;

- In this study, Proportion MI-consistent skills was associated with proportion change talk, and proportion change talk was associated with risk behavior reduction;

- But effect sizes are small. SO we must ask - are we missing key process variables of interest and/or are we averaging away key population or contextual differences in how MI works?

- Is it time for a Change Talk Summit? In other words, are there conceptual or methodological reasons for the mixed predictive validity of this variable?
Results 2: Relational Hypothesis Unsupported

Therapist Global Empathy $k = 21$

$r = - .04, Q > .05$

Therapist MI-SPRIT $k = 21$

$r = - .04, Q > .05$

Notes. $k =$ Number of studies
Long view 2: Relational Hypothesis

- The Relational Hypothesis, on average, was not supported.
- The finding is consistent with Pace et al., 2017, and for the most part Romano & Peters 2016.
- Should we conclude the relationship does not matter in MI?
- Or have we not found the right way to study the relationship in MI?
- The MISC uses 5-point ordinal measures with great face validity, good reliability, but restricted range in RCT samples.
- So is it a lack of true predictive validity or a ceiling effect?
Results 3: Partial Support for the conditional process model

Therapist MI-Consistent Skills
\( k = 25 \)

\[ r = .40^{**} \]

Therapist MI-Inconsistent Skills
\( k = 24 \)

\[ r = .16^* \]

Proportion MI-Consistent
\( k = 22 \)

\[ r = .11^* \]

Client Change Talk
\( k = 24 \)

\[ r = .55^{**} \]

Client Sustain Talk
\( k = 24 \)

\[ r = -.18^{**} \]

Proportion Change Talk
\( k = 23 \)

Risk Behavior Outcomes

Re-pooled \( a \) path by “Average” V “Good” Empathy and MI Spirit. RESULT: 60% reduction in Q

Re-pooled \( b \) path by “Yes” V “No” Client Treatment Seeking Result: Homogeneity

Notes. \( k \) = Number of studies; ** \( p < .001 \); * \( p < .05 \)
Heterogeneity was reduced by re-pooling therapist to client \textit{a paths} by relational performance (good v average Empathy/Spirit), but the magnitude of effects did not differ substantively between sub-groups.

Similarly, while homogeneity was achieved by re-pooling the proportion change talk to outcome \textit{(b path)} effect sizes, the magnitude did not differ in treatment seeking versus non treatment seeking samples.

So, variability was explained, but sub-group effect sizes did not have more of a story to tell than the overall pooled effect size.

In SUM effect sizes are moderate at the a path and small at the b path. And small overall for proportion indicator a and b path.
Meta-Analytic Review: Take Home Model!

Proportion MI Consistent Versus Inconsistent Skills

Proportion Complex Versus Simple Reflections

Proportion Change Versus Sustain Talk

Risk Behavior Outcomes

Therapist Empathy and MI Spirit > 60% reduction in Q significance

Client Treatment Seeking Status Yes versus no
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