



# Database of Knowledge Translation Tools

## Intervention Summary

### 1. Motivational Interviewing (MI) to Increase Physical Activity in People with Chronic Health Conditions

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### 2. Intervention Description

*Brief summary: MI has evidence to support its use in practice for treatment of addiction, depression, and other areas. However, studies on increasing physical activity in people with chronic health conditions are inconclusive. For this reason, we cannot make a recommendation related to use of this practice for this purpose at this time. We will continue to monitor the research and provide updates as they are available.*

#### **Description and Purpose of the Motivational Interviewing (MI):<sup>1,2</sup>**

- MI is a directive, client-centered, and goal-directed counseling approach used to elicit behavior change by helping clients to examine and resolve ambivalence
  - Most centrally defined as a facilitative style for interpersonal relationship
- The Norwegian Health Authorities state that motivational conversation is a cooperative style of conversation with the purpose of strengthening a person's motivation and engagement related to change.
- MI research consists of trials with a variety of intervention doses, ranging from one session by phone up to multiple sessions over longer periods of time.

### 3. Considerations for Clinical Use

**Knowledge Expert group summary on ECM:** There is a lack of evidence to support use MI in patients with chronic health conditions, therefore, we cannot make a recommendation at this time.

#### **Considerations:**

- Research in other fields has demonstrated a significant effect for reduction of body mass index, total blood cholesterol, systolic blood pressure, blood alcohol concentration, and standard ethanol content.<sup>3</sup>
- This summary specifically looked at use of MI to increase physical activity, cardiorespiratory fitness, or functional exercise capacity. Specific articles reviewed included samples of adults (>18 years) with a chronic health condition defined as a long-term condition managed by a medical practitioner or allied health professional.
- Outcomes assessed in the studies included physical activity, cardiorespiratory fitness, and functional exercise capacity
  - Physical activity was measured by an accelerometer, pedometer, questionnaire, or self-report
  - Cardiorespiratory fitness was measured by VO<sub>2</sub> Max or VO<sub>2</sub> peak
  - Functional exercise capacity was measured by walk tests
- The impact of the dose could not be determined. Details about the duration of sessions and adherence were often not provided. However, a larger effect was seen with higher levels of participation in MI intervention.<sup>4</sup>
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## 4. Overview of the Literature

### Brief overview of theoretical basis for MI.<sup>3</sup>

- Relies upon identifying and mobilising the client's intrinsic values and goals to stimulate behaviour change
  - Motivation to change is elicited from the client.
  - Readiness to change is not a client trait, but a fluctuating product of interpersonal interaction
  - Resistance and 'denial' is often a signal to modify motivational strategies
  - Eliciting and reinforcing the client's belief in ability to carry out and succeed in achieving a specific goal is essential
- The therapeutic relationship is a partnership with respect of client autonomy

### Systematic reviews or meta-analysis on MI:

#### Alperstein and Sharpe, 2016.<sup>1</sup>

- Meta-analysis and systematic review
- Assessed the effects of MI on improving adherence to exercise, pain, and physical function on patients with chronic pain
- Included: 7 RCTs
  - Compared individuals with chronic pain who received MI with an inactive control group (i.e. attention, placebo or wait-list group)
  - Included studies of MI provided in conjunction with other treatments as long as this was controlled for in the other arm.
- Results:
  - Adherence:
    - Baseline to after intervention: *Small to moderate effect* (Hedges  $g = .441$ , 95% CI: .078 - .80,  $p = .017$ )
    - Baseline to 6-month follow-up: *Not significant* (Hedges  $g = .235$ , 95% CI: -.091 to .581;  $p = .153$ )
  - Pain intensity
    - Baseline to after intervention: *Small to moderate effect* (Hedges  $g = .270$ , 95% CI: .078 - .80,  $p = .022$ )
    - Baseline to 6-month follow-up: *Not significant* (Hedges  $g = .100$ , 95% CI: -.058 to .259;  $p = .214$ )
  - Physical functioning: *Not significant* from baseline to immediately following MI, or baseline to follow-up in any studies

### Kunnskapscenteret 2015 (The Norwegian center for knowledge; O'Halloran et al 2014<sup>2</sup>):

A summary featured by Kunnskapscenteret stated:<sup>5</sup>

- MI may increase short-term physical activity in persons with long-term health related challenges (*Small effect*, SMD 0.19, 95% CI: 0.6 to 0.32)
- MI probably has minimal to no effect on functional training capacity in MS and Fibromyalgia (SMD = .13; 95% CI: 0.08 to 0.34)
- Very few studies assessed the impact of MI on Cardiorespiratory capacity, thus not reported.

*Primary studies included in Alperstein and Sharpe 2016<sup>1</sup> and O'Halleran et al, 2014<sup>2</sup> described below*

### Chronic Pain

Habib et al, 2005, Chronic pain<sup>6</sup>: *Significant changes in adherence only*

- Quality Rating 13 (Poor, determined by *Alperstein and Sharpe<sup>1</sup>, 2016*)
- Adherence to attendance to pain management program (n= 39, controls n=39)
  - Experimental: 2 sessions of MI, including 1-1,5 hours assessment based and 1,5 hours feedback

- Control intervention: Two sessions 1:1 treatment, 5 hours standard pain assessment and feedback interviews
- Results: Adherence changes baseline to post-test, Moderate to Large change (hedges g = 0.649, 95% CI: .177-1.120, p = .007)

Miller et al, 2013, (Chronic Pain)<sup>7</sup>: *No significant changes in pain intensity*

- Quality rating 12 (poor, determined by *Alperstein and Sharpe<sup>1</sup>, 2016*)
- Interventions: MI-based feedback of the oral history interview
- Results: Insignificant changes in pain intensity

### **Low Back Pain:**

Basler et al, 2007, low back pain<sup>8</sup>: *No significant changes in functioning*

- Quality Rating 28 (Excellent, determined by *Alperstein and Sharpe, 2016<sup>1</sup>*)
- Adherence to prescribed physical activity (average duration of physical activity per day) measured by an exercise log book
- Interventions provided: (MI: n=86, Control: n=84)
  - MI: 10 Trans-Theoretical Model (TTM-based) standardized counseling before each physiotherapy session; 20 minutes standardized PT over 5 weeks with homework
  - Control: Placebo ultrasound with inactive device; 20 minutes standardized PT over 5 weeks with homework
- Results: Functioning: changes were not significant

Vong et al, 2011, low back pain<sup>9</sup>: *Significant change in adherence, No significant change in function and pain*

- Quality rating 24 (excellent, determined by *Alperstein and Sharpe<sup>1</sup>, 2016*)
- Interventions provided: (MI: n=45, Controls: n=43)
  - Motivational enhancement therapy (MET) delivered during PT (10, 30-min sessions over 8 weeks)
  - Control intervention, usual communication skills during PT (10, 30-min sessions over 8 weeks)
- Results:
  - Adherence to prescribed physical activity, measured by an exercise log book:
    - Significant improvements Baseline to Post, Large change (Hedges g 1.216, 95% CI: .731-1.701)
  - Functioning, measured by Roland-Morris Disability Questionnaire: insignificant effect
  - Pain intensity: insignificant effect

Leonhardt et al, 2008, low back pain<sup>10</sup>: *No significant changes in adherence, function, and pain intensity*

- Quality rating 20 (excellent, determined by *Alperstein and Sharpe<sup>1</sup>, 2016*)
- Interventions provided: (MI: n=101, controls n=104)
  - MI: 1 to 3 TTM-based sessions (15 to 20 min)
  - Control intervention, general PR actioner delivered guidelines
- Results:
  - Adherence to physical activity measured by the Freiburger Questionnaire: Insignificant changes
  - Physical functioning measured by the Hannover Functional Disability Questionnaire: Insignificant changes
  - Pain intensity: Insignificant changes

### **Rheumatoid Arthritis**

Zwikker et al, 2012, Rheumatoid Arthritis<sup>11</sup>: *Significant change in pain intensity, no significant change in adherence and physical functioning*

- Quality rating 28 (excellent, determined by *Alperstein and Sharpe<sup>1</sup>, 2016*)
- Interventions provided (MI: n=57, Controls n=60)
  - MI: Two MI-based group sessions, 5-7 people per group, 1wk apart
  - Controls: Recipient of conjunct treatment
- Results

- Adherence to prescribed medication measured by the Compliance Questionnaire Rheumatology: Insignificant
- Physical functioning measured by Health Assessment Questionnaire Disability Index: Insignificant
- Pain intensity: Significant, small to moderate changes (Hedges g .488, 95% CI: -.225 to .509)

### **Neurologic Rehabilitation Populations**

Ang et al. 2013, Fibromyalgia<sup>12</sup>: *No significant changes in physical activity or cardiorespiratory capacity*

- Interventions: both groups received an aerobic exercise prescription and 2 individuals supervised exercise sessions; Exercise intensity (40-50% of heart rate reserve), duration (10-12 minutes/session), frequency (2-3 times/day)
  - MI: 6 telephone calls over 12-weeks (n=107)
  - Control: Didactic health information on a variety of topics (n=109)
- Results: *No significant differences* in physical activity and cardiorespiratory capacity (measured by accelerometer over 7 days, CHAMPS (typical day), 6 min walk test immediately following (p = .13) or 6-months post (p = .40)

Bombardier et al. 2013, Multiple Sclerosis<sup>13</sup>: *Significantly greater physical activity in MI group*

- Intervention:
  - MI: Single in-person session (60-90 min), followed by 5 telephone sessions (30-min, weeks 1,2,3,8, 12) (n=44)
  - Control: No treatment (n=48)
- Results:
  - Adherence not measured
  - Health Promoting lifestyle profile: *Significantly greater physical activity in MI group*

### **Obesity**

Befort et al. 2008, Obesity<sup>14</sup>: *No significant difference between groups*

- Intervention: Weight loss program + MI or Weight loss + health education
  - MI: Sessions delivered at 0 (in-person), 3 (by phone), 8 (in-person), and 13 (by phone) weeks (n=21)
  - Control: Health education using the same delivery format as MI (n = 23)
- Results
  - Adherence measured by session adherence, self-monitoring logs: *No significant difference between groups*
  - Physical activity measured by CHAMPS: *Moderate effect* (SMD 0.5; 95% CI: -0.55 to 0.64 at 95% CI); *However, no significant difference between groups*

Carels et al 2007, Obesity<sup>15</sup>: *Significant improvements in MI group on physical activity logs*

- Intervention groups:
  - MI: 20-session weight loss program + Stepped care (included MI weekly x 45-60 minutes) (n=19)
  - Control: 20-session weight loss program (n=16)
- Results:
  - Adherence not measured
  - Physical activity:
    - Physical Activity logs: *Significant improvements in MI group* (58 min more)
    - Submaximal graded exercise test: *No significant differences*

Greaves et al 2008, Obesity<sup>16</sup>: *No significant differences*

- Intervention groups:
  - Information leaflets (n=36)
  - Behavioral counselling (MI): ~11 sessions over 6 months, Combination of 1:1 meetings and telephone contact, mean 34 minutes per contact (n=49)
- Results
  - Physical activity measured by Modifiable Activity Questionnaire: *No significant differences*

## Cardiac Rehabilitation Populations

Hardcastle et al, 2008, obesity-, overweight-, hypertension-, hypercholesterolemia- patients<sup>4</sup>: *Significant differences in total physical activity and walking minutes/week*

- Intervention groups
  - Experimental: Standard exercise and nutrition information + up to 5 face-to-face sessions (20-30 minutes) over 6-months (n=203)
  - Controls: Standard information provided (n=131)
- Results
  - Adherence: 2.0 counselling sessions attended
  - Physical activity measured by Short interview version of the IPAQ
    - Vigorous to moderate vigorous activity: *No significant differences*
    - Total physical activity: *Significant difference*
    - Walking minutes/week: *Significant difference (114 min/week more)*

Reid et al, 2011, acute coronary syndromes<sup>17</sup>: *No to minimal effect*

- Interventions
  - MI: one face-to-face and 8 telephone contacts over 52 weeks delivered by PT (n=69)
  - Control: written information about a walking program and physical activity advice (n=72)
- Results:
  - Adherence to MI session attendance: 100% at first session to 83% at last session
  - Physical activity
    - 7 day recall interview: *No to minimal effect at 6 months (Cohen's d = -.40) and 12 months (Cohen's d = -.27)*
    - Godin leisure time physical activity questionnaire: *No to minimal effect at 6 months (Cohen's d = -.44) and 12 months (Cohen's d = -.36)*
    - Pedometer over 7 days: *No to minimal effect at 6 months (Cohen's d = -.05) and 12 months (Cohen's d = -.15)*

## 5. Links to other relevant resources:

**Websites:** <https://www.fhi.no/publ/2015/blir-man-mer-fysisk-aktiv-av-motiverende-samtale/>

## 6. References:

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