Motivational Interviewing post-stroke: Unpicking the “black box” of a complex intervention.

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Presented by
Dr Liz Lightbody
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• Principles of Motivational Interviewing
  Motivational interviewing based approach to promote adjustment following a stroke

• Background – psychological adjustment

• Exploring:
  – MI fidelity
  – Sessional Variation
  – Session Content
What is psychological adjustment?

ADAPTATION

Stroke → Reactions

Biological
Psychological
Social
“I just want to get back to normal…”

Updating the representation of the self (Gracey et al, 2009)

Personal goals

Personal skills, determination and belief in self (Powell, et al, 2007)

*The changes that arise may cause disruption to these goals, with this having the consequence of negative affect* (Yeates, 2008)

Social support/context

– Changed roles within the family and workplace (Maitz & Sacks, 1995)
– Worry about being a burden (Lawrence, 2010)
– Social support and positive encouragement (Powell, et al, 2007)
Adjustment

• What you make of the stroke and its effects
• Mismatch between beliefs and expectations
• Mismatch between
  – What is seen as important (beliefs)
  – What is thought achievable (expectations)
  – Importance vs Confidence in achieving

CHANGING What you make of the stroke and its effects
Maybe MI at an early stage after stroke will help the person to feel equipped and ready for the journey ahead.
“a collaborative, goal-orientated style of communication with particular attention to the language of change. It is designed to strengthen personal motivation for and commitment to a specific goal by eliciting and exploring the person’s own reason for change within an atmosphere of acceptance and compassion”.

(Miller & Rollnick 2012)
Work with the person’s ambivalence, dilemmas & concerns to:

• Explore Importance (if necessary)
• Build Confidence

• Elicit a person’s own solutions

• Elicit a person’s usual coping style and successful use in the past

• Explore application in the present & the future
Evaluation: methods

- Single Centre RCT
- Usual care \( \text{v} \) Usual care plus MI
- Groups balanced for
  - Age & Sex
  - Location (ASU or not)
  - Function (Day 7 Barthel)
- Inclusion
  - Surviving to week 2
  - Able to consent and converse
Methods: intervention

• Four therapists trained in MI
  • Formal training (Jeff Allison)
  • Practice patients
  • Intensive peer and supervisor support

• Four sessions of Motivational Interviewing
  • Nominal one hour/week
  • Hospital or home

• Regular support
  • Clinical supervision (MI trained Clinical Psychologist)
  • Peer support group

• Sessions were recorded, transcribed and some videoed
Methods: outcome

• Postal questionnaires, 3 months after stroke  
  – repeated at 12m

• **Primary Outcome**  
  Mood - GHQ-28  
  • Dichotomised into Normal (<5) or Low (≥5)

• **Secondary Outcomes**  
  Mortality  
  Mood - Yale  
  Function - Barthel Index
Recruitment

1388 Assessed

696 Eligible

411 Consented & randomised
204 Intervention Group Usual Care + MI
207 Control Group Usual Care

285 Refused
## Baseline characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>MI (n = 204)</th>
<th>Usual care (n = 207)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freq.</td>
<td>%</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Young (&lt;65 yrs.)</td>
<td>71</td>
<td>34.8</td>
</tr>
<tr>
<td>Old (≥65 yrs.)</td>
<td>133</td>
<td>65.2</td>
</tr>
<tr>
<td><strong>Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>119</td>
<td>58.3</td>
</tr>
<tr>
<td>Female</td>
<td>85</td>
<td>41.6</td>
</tr>
<tr>
<td><strong>Barthel Index (Day 7)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No / Mild dependence (18-20)</td>
<td>100</td>
<td>49.0</td>
</tr>
<tr>
<td>Mod dependence (11-17)</td>
<td>61</td>
<td>29.9</td>
</tr>
<tr>
<td>High dependence (0-10)</td>
<td>43</td>
<td>21.1</td>
</tr>
</tbody>
</table>
## Effect of MI on mood at 3m and 12m

<table>
<thead>
<tr>
<th>Time</th>
<th>Mood</th>
<th>MI</th>
<th>Usual Care</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Freq</td>
<td>%</td>
</tr>
<tr>
<td>Baseline</td>
<td>Normal</td>
<td>77</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>127</td>
<td>62</td>
</tr>
<tr>
<td>3 month</td>
<td>Normal</td>
<td>100</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>104</td>
<td>51</td>
</tr>
<tr>
<td>12 month</td>
<td>Normal</td>
<td>88</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>Low</td>
<td>74</td>
<td>46</td>
</tr>
</tbody>
</table>

- At 12 months: significant benefit of MI over usual care (p=0.02)
  - OR (normal mood at 12m)=1.66, 95% CI = 1.08-2.55

- Overall deaths in sample: 13 (7.3%)  Usual Care: 25 (13.8%)
  - (OR: 2.15, 95% CI=1.06 to 4.38; P=0.03).
  - NNT = treat 12 patients with MI, prevent 1 death
  - Recent meta analysis of depression post stroke and mortality OR 1.6
Prevention

Normal mood at baseline
Treatment

Low mood range at baseline
Why does MI work

• Ideal: identify effective mechanism

• Reality: Complex intervention
  – Patient factors
  – Context (session) factors
  – Therapist factors
  – Interaction factors
We aimed to explore:

• variation in patient, therapist and session factors in our trial

• the process of MI
Methods

• Session
  – Location, duration, time and number
• Patient
  – Demographics, function, communication, cognition
• Therapist factors
  – age, gender, background and experience
  – Sample of 60 transcripts, 20 therapist utterances
  – MITI global and competence ratings
## Session variations (4 therapists)

<table>
<thead>
<tr>
<th>Session factors</th>
<th>Category</th>
<th>Therapist</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients with 4 sessions</td>
<td></td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td></td>
</tr>
<tr>
<td>Median (IQR) session duration (minutes)</td>
<td></td>
<td>24 (73%)</td>
<td>60 (75%)</td>
<td>7 (50%)</td>
<td>55 (73%)</td>
<td></td>
</tr>
<tr>
<td>All sessions in hospital (% of each therapist total)</td>
<td></td>
<td>45 (41-49)</td>
<td>60 (27-45)</td>
<td>46 (39-51)</td>
<td>55 (23-36)</td>
<td></td>
</tr>
<tr>
<td>Patients treated on acute stroke unit</td>
<td></td>
<td>1 (4%)</td>
<td>10 (17%)</td>
<td>2 (25%)</td>
<td>16 (29%)</td>
<td></td>
</tr>
<tr>
<td>Same sex therapist-patient dyads</td>
<td></td>
<td>26 (78%)</td>
<td>56 (70%)</td>
<td>11 (78%)</td>
<td>55 (73%)</td>
<td></td>
</tr>
</tbody>
</table>

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*University of Central Lancashire*
## Patient variations (4 therapists)

<table>
<thead>
<tr>
<th>Factor</th>
<th>Category</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>21/33 (64%)</td>
<td>50/80 (63%)</td>
<td>5/14 (36%)</td>
<td>42/75 (56%)</td>
<td></td>
</tr>
<tr>
<td>Mean age [rounded up] (SD)</td>
<td>68 (12.0)</td>
<td>70 (12)</td>
<td>64 (11.0)</td>
<td>69 (12)</td>
<td></td>
</tr>
<tr>
<td>Normal mood at baseline (GHQ &lt;5)</td>
<td>10 (31%)</td>
<td>32 (41%)</td>
<td>3 (27%)</td>
<td>27 (37%)</td>
<td></td>
</tr>
<tr>
<td>Normal mood at 3 months (GHQ &lt;5)</td>
<td>19 (58%)</td>
<td>41 (51%)</td>
<td>4 (29%)</td>
<td>35 (47%)</td>
<td></td>
</tr>
<tr>
<td>Normal mood at 12 months (GHQ &lt;5)</td>
<td>18 (55%)</td>
<td>38 (48%)</td>
<td>6 (43%)</td>
<td>35 (47%)</td>
<td></td>
</tr>
<tr>
<td>No cognitive or communication impairment</td>
<td>18 (58%)</td>
<td>31 (45%)</td>
<td>7 (64%)</td>
<td>27 (38%)</td>
<td></td>
</tr>
<tr>
<td>Severe functional impairment</td>
<td>4 (12%)</td>
<td>21 (26%)</td>
<td>5 (36%)</td>
<td>13 (17%)</td>
<td></td>
</tr>
<tr>
<td>Alive at 12 months</td>
<td>30 (90%)</td>
<td>73 (91%)</td>
<td>11 (79%)</td>
<td>69 (92%)</td>
<td></td>
</tr>
</tbody>
</table>
## MI competence by Therapist

<table>
<thead>
<tr>
<th>Intervention factors</th>
<th>Category</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of patients in therapy (%)</td>
<td>33 (16%)</td>
<td>80 (40%)</td>
<td>14 (7%)</td>
<td>75 (37%)</td>
<td></td>
</tr>
<tr>
<td>MI Inconsistent % of session total</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Closed questions % of session total</td>
<td>20</td>
<td>7</td>
<td>22</td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>Open questions % of session total</td>
<td>10</td>
<td>4</td>
<td>2</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Complex reflections % of session total</td>
<td>23</td>
<td>25</td>
<td>17</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Simple reflections % of session total</td>
<td>11</td>
<td>12</td>
<td>30</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Other MI Consistent responses % of session total</td>
<td>10</td>
<td>11</td>
<td>8</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>MI neutral responses % of sessions total</td>
<td>25</td>
<td>40</td>
<td>21</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>Global Rating MI Quality (median (Range))</td>
<td>7 (6-7)</td>
<td>7 (6-7)</td>
<td>6 (6-7)</td>
<td>7 (6-7)</td>
<td></td>
</tr>
</tbody>
</table>
Results

• Success rates of MI varied 29-58\% (p=0.20)

• Success was not related to
  – number of sessions (p=0.14)
  – total session duration (p=0.12).
Methods: Transcript analysis

- 10 participants
  - 8 men
  - 5 > 65 years
  - 6 mild, 1 mod, 3 severe stroke severity
  - 5 were depressed at baseline
  - 5 had all their MI sessions in hospital
- All four MI therapists were represented in the sets of transcripts
Methods: Transcript analysis

- Two content analyses
  - focus of discussions “concerns”
  - instances of change discourse
- The same approach was used in both analyses
- Two researchers, independently coded
- Differences were reviewed and resolved by a consensus panel of two experienced MI therapists and the two coders.
<table>
<thead>
<tr>
<th>Stroke story</th>
<th>Medical diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shock of stroke</td>
<td>Back to Normal</td>
</tr>
<tr>
<td>Relationships</td>
<td>Family</td>
</tr>
<tr>
<td>Work</td>
<td>Social life</td>
</tr>
<tr>
<td>Residual problems</td>
<td>Dissatisfaction with progress</td>
</tr>
<tr>
<td>Frustration with condition</td>
<td>Worry/concern</td>
</tr>
<tr>
<td>Dissonance</td>
<td>Goals</td>
</tr>
<tr>
<td>Acceptance</td>
<td>Being a burden</td>
</tr>
<tr>
<td>Control</td>
<td>Change</td>
</tr>
</tbody>
</table>
## Methods: Parallel-Serial Memoing

L1, L2 and L3 researchers within a case-team independently read transcripts and form own interpretations.

<table>
<thead>
<tr>
<th>Level 1 researcher (L1)</th>
<th>Session 1 memo</th>
<th>Session 2 memo</th>
<th>Session 3 memo</th>
<th>Session 4 memo</th>
<th>Cross-session memo</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 2 researcher (L2)</td>
<td>Add comments</td>
<td>Add comments</td>
<td>Add comments</td>
<td>Add comments</td>
<td>Add comments</td>
</tr>
<tr>
<td>Level 3 researcher (L3)</td>
<td>Add comments (S1 meta-memo)</td>
<td>Add comments (S2 meta-memo)</td>
<td>Add comments (S3 meta-memo)</td>
<td>Add comments (S4 meta-memo)</td>
<td>Add comments (cross-session meta-memo)</td>
</tr>
</tbody>
</table>

Case-team and wider research group discuss meta-memos and interpretations.

- Theoretical memo
- Thematic analysis by two researchers

Patel et al., (in press) Qualitative Health Research
### Session content: topics raised

<table>
<thead>
<tr>
<th>Concerns raised</th>
<th>Concerns explored</th>
<th>Adjustment difficulties discussed</th>
<th>Gradual acceptance</th>
<th>Confidence and optimism increased</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Driving</td>
<td>Participants talked about their worries and concerns. The therapist helped them to explore them in more depth through questions and reflections.</td>
<td>Participants talked about obstacles to adjusting and reaching their goals. The therapist encouraged the participant to think about ways to overcome such difficulties.</td>
<td>As sessions progressed and adjustment difficulties were overcome, participants often became more accepting of their situation.</td>
<td>With increased acceptance often came increased confidence and optimism. Participants became less frustrated and worried and instead began to look forward.</td>
</tr>
<tr>
<td>- Dependence</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Inability to work</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Identity / self-worth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Risk of further stroke</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Control</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Co-morbidities</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Auton et al., Qualitative Health Research 2015
300-2146 - Main concerns are to be able to return to work and resume his pre-stroke activities. Frustration is a major issue resulting from his slow pace of recovery, in spite of this he describes a high level of confidence in the first session. By session two he as realised that his actual recovery will be a lot longer than he anticipated, and he was over-confident when setting his own goals for recovery. Sessions three and four are more upbeat as his initial over-optimism is modified by acceptance of his situation which seemed to reduced his sense of frustration. Physical recovery is still a concern, as is the time it will take, and the level he will actually reach. He has adjusted to the situation and reviewed his targets to a more realistic level which now in line with those of the medical staff, who he initially regarded as pessimistic.

- Concerns raised and explored
- Adjustment difficulties discussed
  - Gradual acceptance
- Confidence and optimism increased
Conclusion

• MI is a complex intervention
• **Form** of the intervention difficult to standardise: Sessional, therapist and patient variations (parameters unknown)

• **Function** of the intervention can be standardised—this may be sufficient
  – To be MI consistent
  – To use MI principles to work with patient to adjust
  – To use supervision to maintain focus and fidelity
We would like to acknowledge our funders and collaborators

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Questions?