Predicting relief for people with persistent back pain

Hayley Thomson

(Michel Coppieters)

@michelcoppie
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Background

• Low back pain is ranked first in global burden of disease studies.

• Prognostic screening of people with back pain improves utilisation of primary healthcare resources.

• In primary healthcare, psychosocial factors have better predictive value than biological factors.

• Whether this also applies to secondary healthcare settings remains unclear.

Hartvigsen et al., 2018
Methods

A prospective cohort study in a secondary healthcare setting:

(1) To develop prognostic models to predict at baseline good and poor outcome to a physiotherapy program (UPLIFT).

(2) To determine whether participation in the UPLIFT program is associated with changes in psychosocial characteristics.
Methods

• N = 246 (from a physiotherapy-led neurosurgical screening clinic)

• Low back pain > 3 months

<table>
<thead>
<tr>
<th>Duration</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 – 12 months</td>
<td>15%</td>
</tr>
<tr>
<td>12 – 24 months</td>
<td>15%</td>
</tr>
<tr>
<td>2 – 5 years</td>
<td>27%</td>
</tr>
<tr>
<td>&gt; 5 years</td>
<td>42%</td>
</tr>
</tbody>
</table>

- 21%: Employed
- 12%: Unemployed by choice
- 67%: Unemployed
Methods

• N = 246 (from a physiotherapy-led neurosurgical screening clinic)
• Low back pain > 3 months

• 10 predictor variables
  1. Fear avoidance beliefs
  2. Pain self-efficacy
  3. Low back pain treatment beliefs
  4. Pain catastrophising
  5. Perceived injustice
  6. Depression, anxiety and stress
  7. Disability level
  8. Pain intensity and interference
  9. Health status
  10. Social connectedness
Methods

• N = 246 (from a physiotherapy-led neurosurgical screening clinic)
• Low back pain > 3 months
• 10 predictor variables
• Primary outcome: Global Rating of Change @ end of UPLIFT (& @ 6 months)
Methods

• N = 246 (from a physiotherapy-led neurosurgical screening clinic)

• Low back pain > 3 months

• 10 predictor variables

• Primary outcome: Global Rating of Change @ end of UPLIFT (& @ 6 months)

• Secondary outcome: Change in psychosocial characteristics

• Prognostic modelling: - Multivariable logistic regression analyses
  - Bootstrapping for internal validation
  - Explained variance of the models
The UPLIFT program

• 5 sessions (1 per week)
• 60 mins interactive group discussion & 30 mins exercise
• Volunteer ‘expert patient’
• Multidisciplinary team
Table 1: Curriculum of the UPLIFT programme

<table>
<thead>
<tr>
<th>Themes/Sessions</th>
<th>Target concepts</th>
<th>Content</th>
<th>Delivery mode and additional resources</th>
<th>Assessment</th>
<th>Did the participant understand?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pain neuroscience education</td>
<td>Pain is normal and is always real.</td>
<td>Examples of pain as an output of the nervous system in everyday activity.</td>
<td>Every participant will be provided a take-away patient workbook to reinforce the education provided by face-to-face group sessions.</td>
<td>Level of group interaction and engagement.</td>
<td>Can participants extrapolate target concepts to personal experience of pain? Can participants share examples of when...</td>
</tr>
<tr>
<td></td>
<td>Pain is a protective mechanism.</td>
<td>The body sending danger signals and the brain decides whether to produce pain.</td>
<td>Small group peer-to-peer discussion model with group discussion sharing good news stories and ‘lessons learnt’ from previous weeks.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Pain involves distributed brain activity.</td>
<td></td>
<td>Examination of some of the personal stories about what participants have avoided and why.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pain and tissue damage are poorly related.</td>
<td></td>
<td>Exploration of how participants feel they may have to validate their pain in light of social stigma.</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Pain relies on context.</td>
<td></td>
<td>Presentation of evidence regarding the poor correlation between normal age-related changes in pain and clinical pain.</td>
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<tr>
<td></td>
<td>We are biopsychosocial.</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>2. Pacing</td>
<td>Degree of pain does not equal amount of damage.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Pain is an overprotector.</td>
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<tr>
<td></td>
<td>Pain is one of many protective components.</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Meaningful movement reduces pain.</td>
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<tr>
<td>3. Flare-up management</td>
<td>Degree of pain does not equal amount of damage.</td>
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<tr>
<td></td>
<td>Increased pain can be from many causes.</td>
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<tr>
<td></td>
<td>Important to manage the physical and psychological responses.</td>
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<td></td>
<td>Triggers of flare-ups are not necessarily biomechanical.</td>
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<tr>
<td></td>
<td>Active approaches promote recovery.</td>
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</tbody>
</table>

4. Acceptance

| | Pain is one of many protective outputs. | | | | |
| | Some pain may be unavoidable. | | Group discussion sharing ‘good news stories’ and ‘lessons learnt’ from previous weeks. | | |
| | Normal experience of persistent pain is one of relapse and recovery over a protracted period. | | Examination of some of the personal stories about what participants have avoided and why. | | |
| | Acceptance is pragmatic realism, it is not ‘giving up’ or resignation. | | Exploration of how participants feel they may have to validate their pain in light of social stigma. | | |
| | In most cases, more scans are not helpful. | | Presentation of evidence regarding the poor correlation between normal age-related changes in pain and clinical pain. | | |
| | Pain and disability from pain are two different things and can be uncoupled. | | | | |

5. Healthy lifestyles

| | Overall improved general health enhances reduction in pain and increased capacity. | | Group discussion sharing ‘good news stories’ and ‘lessons learnt’ from previous weeks. | | |
| | Sleep is restorative. | | Examination of some of the personal stories about what participants have avoided and why. | | |
| | Aim to reach a 30 min per day exercise programme. | | Exploration of how participants feel they may have to validate their pain in light of social stigma. | | |
| | Socialisation is important. | | Presentation of evidence regarding the poor correlation between normal age-related changes in pain and clinical pain. | | |
| | Meaningful movement reduces pain. | | | | |

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Identifying psychosocial characteristics that predict outcome to the UPLIFT programme for people with persistent back pain: protocol for a prospective cohort study

Hayley Thomson,1,2 Kerrie Evans,3,4 Jonathan Dearnies,3 John Kelley,1 Kylie Conway,4 Collette Morris,1 Leanne Blisset,5 Gwendolyn Scholten-Peeters,5 Pim Cuipers,4 Michel W Coppieters2,5


ABSTRACT

Introduction: Prognostic screening of people with low back pain (LBP) improves utilisation of primary healthcare resources. Whether this also applies to secondary healthcare remains unclear. Therefore, this study aims to develop prognostic models to determine at baseline which patients with persistent LBP are likely to have a good and poor outcome to a 5-week programme of combined education and exercise (UPLIFT) delivered in a secondary healthcare setting.

Methods and analysis: A prospective cohort study of 246 people with persistent LBP will be conducted in a secondary healthcare outpatient setting. Patients will be recruited from a physiotherapy-led musculoskeletal screening clinic. Demographic data, medical history and psychosocial characteristics will be recorded at baseline. Poor adherence beliefs, pain self-efficacy, LBP treatment beliefs, pain catastrophising, perceived control and social support will be assessed. The primary outcome is self-reported LBP improvement at 12 months. The study will be conducted in accordance with the principles of the Declaration of Helsinki.

Strengths and limitations of the study

The main strengths of this study include: the ability to identify factors that influence outcomes for patients with low back pain in secondary healthcare settings; the originality of using predictive models to inform healthcare resource allocation; the use of validated questionnaires.

The main limitations of this study include: the sample size may be too small to detect significant differences in outcomes between the two groups; the study may not be generalisable to other populations or settings.

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Results

- 49% success; 51% non-success
- Improvements in all psychosocial characteristics
Results and conclusions...

- 49% success; 51% non-success
- Improvements in all psychosocial characteristics

But,... and:

- Poor performance of prediction models: Explained variance: ~ 6%
Musculoskeletal Health & Persistent Pain Research Lab

the uplift study

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@michelcoppie
1. **Predictor variables**
   - Fear Avoidance Beliefs Questionnaire
     - Waddell et al., 1993
   - Pain Self Efficacy Questionnaire
     - Nicholas, 2007
   - Low Back Pain Treatment Beliefs Questionnaire
     - Dima et al., 2015
   - Pain Catastrophising Scale
     - Sullivan et al., 2008
   - Injustice Experience Questionnaire
     - Sullivan et al., 2008
   - Depression Anxiety Stress Scales 21
     - Lovibond & Lovibond, 1995
   - Oswestry Disability Index
     - Fairbank & Pynsent, 2000
   - Brief Pain Inventory
     - Wand et al., 2011
   - 36 Item Short Form Health Survey
     - Ware Junior, 2000
   - Social Connectedness Scale
     - Lee & Robbins, 1995

2. **Outcome measure**
   - Global Rating of Change Scale
     - Dworkin et al., 2005