Clinical outcomes of a combined physical and psychological program in a large cohort of longstanding Chronic Low Back Pain

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Chronic Low Back Pain (CLBP)

Year prevalence in Dutch population\(^1\): 44%
- ± 25% of absence of work due to CLBP

International Guidelines: **EUROPEAN, NICE (UK) & APS (USA)\(^2\)**
- Combined Physical & Psychological intervention (CPP)

**Aim of this study:**
Review of one-year follow-up results of a large cohort (n=848) and compared with previously published results (‘pilot’: n=107)

1. Picavet & Schouten Pain 2003
2. Airaksinen 2004 Eur Spine J; Chou 2009 Spine; NICE 2009
‘Pilot’ results (n=107)

Daily functioning and self-management in patients with chronic low back pain after an intensive cognitive behavioral programme for pain management

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Disability

Quality of Life

Fig. 1 Oswestry Disability Index (ODI). Graphic trends of three scenarios: the worst case (imputation of baseline value, n = 107), CLOF (carrying the last observation forward, n = 107), and the best-case scenario (completed cases only, n = 82)

Fig. 4 SF36 Physical Component Score (SF36 PCS)
Methods

Consecutive cohort study

2006-2012
n= 955 participated; 96% 1-year follow up

RealHealthNL

2-week residential CPP program

Main inclusion criteria:
  CLBP ≥ 6 months
  Age 18-65
  ‘failure’ of interventions in primary care
  surgical or invasive pain intervention not an option
  ‘stop shopping’ (confirmed by spinal surgeon)
  willingness to change pain related behavior

1. NICE 2009; Chou 2009 Spine  2. Guzman 2002 Cochrane
3. Van Hooff 2010; 2012 Eur Spine J
Outcomes

Primary
Functional status → Oswestry Disability Index (ODI; 0-100)

Secondary
Pain self-management → Pain Self-Efficacy Questionnaire (PSEQ; 0-60)
Quality of Life → MOS SF36 Physical Component Scale (SF36 PCS; 0-100)

Assessments
Intake; Last day of 2-week program; 1 & 12 months follow up
Analysis

**Significant change & difference**
Repeated Measures analysis of variance
   Within-subject factor: Time of measurement (4)
   Between-subject factor: Cohort (2)

**Successful treatment outcome**
Functional status in ‘normal’ healthy populations
Threshold ODI: $\leq 22 = \text{success}^{1;2}$

1. Fairbank & Pynsent 2000 Spine
2. Van Hooff 2013 Eur Spine J
# Patient characteristics

<table>
<thead>
<tr>
<th></th>
<th>‘Pilot’ (n=107)</th>
<th>Large cohort (n=848)</th>
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<tbody>
<tr>
<td>Age</td>
<td>yrs; mean (SD)</td>
<td>43.4 (8.4)</td>
</tr>
<tr>
<td>Duration CLBP</td>
<td>yrs; mean (SD)</td>
<td>12.3 (10.9)</td>
</tr>
<tr>
<td>Gender</td>
<td>female (%)</td>
<td>61 (57)</td>
</tr>
<tr>
<td>Previous surgery</td>
<td>yes (%)</td>
<td>34 (32)</td>
</tr>
<tr>
<td>Employed</td>
<td>yes (%)</td>
<td>75 (70)</td>
</tr>
</tbody>
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* * p < 0.05

Only difference is mean age
Functional status (ODI; 0-100)

Large improvement over time:
- Pilot: \(df_{(1,106)} F = 69.20, p<0.001; R^2_{\text{time}}=0.40\)
- Large cohort: \(df_{(1,844)} F=917.0, p<0.001; R^2_{\text{time}}=0.52\)

Very small difference between cohorts and in favour for large cohort:
- \(df_{(1,950)}, F=6.30, p<0.05, R^2_{\text{cohort}}=0.01\)

No difference in successful treatment outcome
- **Pilot**: 42% (n=45)
- **Large cohort**: 51% (n=433) \((\chi^2=3.08, p=0.08)\)
**SF36 PCS (0-100)**

Large improvement over time:
- Pilot: $df_{(1,106)} \ F=152.08$, $p<0.001$; $R^2_{time}=0.59$
- Large cohort: $df_{(1,845)} \ F=786.1$, $p<0.001$; $R^2_{time}=0.49$

No difference between cohorts:
- $df_{(1,950)} \ F=0.234$, $p=0.63$, $R^2_{cohort}=0.001$

**PSEQ (0-60)**

Improvement over time:
- Pilot: $df_{(1,106)} \ F=65.14$, $p<0.001$;
- Large cohort: $df_{(1,845)} \ F=385.5$, $p<0.001$; $R^2_{time}=0.31$

No difference between cohorts:
- $df_{(1,950)} \ F=0.086$, $p=0.77$, $R^2_{cohort}=0.001$
Discussion & Conclusion

CPP program\(^1\) for longstanding CLBP

- Patients treated in the pilot cohort and treated in the large cohort have similar good results
- Patients improve immediately after following the program
- Patients continue to improve up to one-year follow-up

Half of the patients have improved to ‘normal’ functional status

Combined Physical & Psychological (CPP) program\(^1\) is effective for selected CLBP patients

CPP program as provided by RealHealthNL
Disclosure

Conflicts of Interest:
  – J O’Dowd owns shares in RealHealthNL
Research Development & Education
  – independent research organisation
Sint Maartenskliniek
  – health care provider and referral organisation

Sources of Funding: No funding obtained