Patient self-management in primary care patients with MRC I/II COPD – a randomised controlled trial of telephone health coaching

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Impact of COPD

COPD:

– Affects 5-10% of population aged 65+
– 5\textsuperscript{th} most common cause of death in E&W
– 2\textsuperscript{nd} most common cause of emergency admissions
– Costs NHS >£800m per year
– Consultation rates in GP exceed CHD by 2-4 times
– 1.4 million GP consultations each year
Previous Cochrane systematic reviews

- **Self-management education** (Effing et al, 2007)
  - SGRQ 2.6 (95% CI 0.02, 5.0);
- **Self-management**; (Zwerink et al, 2014)
  - SGRQ 3.51 (1.65, 5.37) 10 trials
  - Respiratory admissions OR 0.57 (95%CI 0.43, 0.75); 9 trials
  - All-cause admissions OR 0.77 (95%CI 0.58, 1.07); 6 trials
- **Pulmonary rehabilitation**; (Lacasse et al, 2009)
  - SGRQ 6.11 (3.24, 8.98) 7 trials
- **Integrated disease management**; (Kruis et al, 2013)
  (systematic, multidisciplinary approach);
  - SGRQ 3.71 (95%CI 1.6, 5.8); 13 trials
  - Respiratory admissions OR 0.68 (95%CI 0.47, 0.99); 7 trials
- **Action plans**; (Walter et al, 2010)
  - no effect on HRQoL, GP or ED visits or admissions
Reasons for study:

- Increase in the number of MRC 1 and 2 patients being identified.

  **MRC DYSPNOEA (BREATHLESSNESS) SCALE: I OR II**

  1. I only get breathless with strenuous exercise
  2. I get short of breath when hurrying on level ground or up a slight hill

- Not eligible for pulmonary rehabilitation (NICE recommends for people who are *symptomatically* breathless)

- Absence of research evidence regarding the effectiveness of self management interventions in primary care for this group of patients.
Aim

To determine whether telephone health coaching to support self-management improves health-related quality of life and health behaviours at 12 months follow-up compared with usual primary care.
Methods: Design

**DESIGN: RCT**
- Intervention: telephone health coaching
- Control: usual care including standard leaflet on COPD
- Follow-up at 6 and 12 months

**INCLUSION CRITERIA:**
- MRC breathlessness I/II
- On primary care COPD register
- Post-bronchodilator spirometry: FEV1/FVC <0.7

**PRIMARY OUTCOME:**
- HRQoL measured using the St Georges Respiratory Questionnaire (SGRQ-C)

**SECONDARY OUTCOMES:**
- Self-reported smoking and physical activity (IPAQ)
- Psychological morbidity (HADS)
- Self-efficacy
- Health care utilisation
- EQ-5D-5L
- Accelerometry at 12 months
Intervention I

• Delivered by a nurse
• Telephone
  – Initial 45-60 minute telephone consultation
  – 3 further calls at 3, 7 and 11 weeks (15-20 mins)
  – Written prompts at 16 and 24 weeks
  – Calls followed by written summary of goals agreed, activity diaries, information about support services (e.g. smoking cessation groups, exercise classes)
• Underpinned by Social Cognitive Theory
Intervention II

• **Smoking cessation**
  – Ready to quit? Encouragement to read smoking cessation booklet
  – Referral to cessation services

• **Adherence to medication**
  – Correct inhaler technique (written or web-based materials)
  – Get checked by pharmacist, practice nurse or GP at routine appointment

• **Exercise**
  – Support to achieve 150 mins of moderate physical activity/week (information, experience, barriers, goal setting, pedometer, self-monitoring)

• **Prompt access to treatments during an exacerbation**
  – Confidence with using action plan for starting antibiotics/seeking medical advice for exacerbation (only if they already have one)
Behavioural change elements

- Information about health consequences
- Goal setting
- Review behavioural goal
- Discrepancy between current behaviour and goal
- Commitment
- Social support
- Salience of consequences
- Pros and cons
- Action planning
- Self-monitoring of behaviour
- Restructuring the physical environment
Results- CONSORT

- 5279 invitations sent to people on COPD registers of 71 practices
- 39% response
- 728 consented to assessment
  - 21% spirometry not eligible (FEV1/FVC > 0.7)
- 577 recruited
- Follow-up at 6m: 92% (I: 85.8%; UC: 98.3%)
- Follow-up at 12m: 89% (I: 82.7%; UC: 96.2%)
Characteristics

• Mean age: 70.4 (sd 8.3) years;
• 63% male;
• 98% white;
• mean BMI 27.2 (sd 4.6);
• 75% were retired;
• 65% married;

• MRC 1: 165 (28.6%);
• mean FEV1% predicted 71.6 (sd 18.8)
• FEV1%pred ≥80: 33%; 50-79: 54%;
• 22.7% current smokers;
• 45.0% had antibiotics in previous 12 months
• 27.6% had steroid course in previous 12m
Fidelity of intervention delivery

• 86% of the scheduled calls were delivered
• 76% of participants received all 4 calls.
• Average duration of calls:
  – 1\textsuperscript{st} call: 39.2 mins (sd 10.7)
  – 4\textsuperscript{th} call: 20.6 mins (sd 8.7)
## Primary outcome: SGRQ-C at 12m

<table>
<thead>
<tr>
<th></th>
<th>Baseline</th>
<th>Twelve Month</th>
<th>Mean Change from Baseline</th>
<th>Mean Difference² (95% CI)</th>
<th>p-value³</th>
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<tbody>
<tr>
<td></td>
<td>Telephone PSM</td>
<td>Usual Care</td>
<td>Telephone PSM</td>
<td>Usual Care</td>
<td>Telephone PSM</td>
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<tr>
<td><strong>SGRQ-C Total Score¹</strong></td>
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<tr>
<td>N</td>
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<tr>
<td>Mean (SD)</td>
<td>27.8 (14.6)</td>
<td>29.5 (14.5)</td>
<td>27.9 (15.7)</td>
<td>30.9 (17.0)</td>
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<td><strong>SGRQ-C Symptoms Score¹</strong></td>
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<tr>
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<td>Mean (SD)</td>
<td>48.5 (21.7)</td>
<td>47.9 (20.7)</td>
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<td>50.1 (22.6)</td>
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<td><strong>SGRQ-C Activity Score¹</strong></td>
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<td>279</td>
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<td>260</td>
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<td>Mean (SD)</td>
<td>36.3 (21.0)</td>
<td>38.7 (21.3)</td>
<td>33.7 (21.1)</td>
<td>39.2 (24.4)</td>
<td>-1.4 (18.3)</td>
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<td><strong>SGRQ-C Impact Score¹</strong></td>
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<td>280</td>
<td>225</td>
<td>261</td>
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<tr>
<td>Mean (SD)</td>
<td>15.4 (13.4)</td>
<td>17.6 (13.9)</td>
<td>16.5 (15.2)</td>
<td>19.3 (15.6)</td>
<td>1.7 (13.0)</td>
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</tbody>
</table>

¹SGRQ-C Ranges from 0-100, where low scores are good and high scores are bad.
²Telephone PSM compared to Usual Care (-ve values favor Telephone PSM).
³Statistical Significance determined from a chi-squared test.
IPAQ change at 6 months from Baseline

Change in METS mins/week

-300 -200 -100 0 100 200 300

Walking
Moderate
Vigorous

Usual care
Intervention

p=0.02
p=0.04
p=0.04

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Other secondary outcomes

- No difference in accelerometry at 12 months
- No difference in % attempting to quit smoking
- HADS – no difference– very low level of anxiety and depression at baseline
- Self-efficacy for managing condition and for physical activity - no difference
- EQ-5D-5L – no difference
Self-management at 6 months

- Has antibiotic rescue pack: p=0.02
- Inhaler check in previous 6m: p=0.01
- Written advice about what to do if symptoms worsen: p=0.05
- Care plan discussed in previous 6m: p<0.01
Conclusions

• The telephone health coaching intervention led to behaviour change at 6 months, but did not result in improved HRQoL at 12 months follow-up in this group of patients with only mildly symptomatic COPD.

• Future research could explore more intensive interventions and long term follow-up of people with early COPD to determine prognosis.
Acknowledgements

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• The views expressed are those of the authors and not necessarily those of the NHS, the NIHR. CLAHRC-WM or the Department of Health.
Telephone Health Coaching

‘A method of patient education that guides and prompts a patient to be an active participant in behaviour change. Coaching involves an interactive approach with the patient that helps to identify impediments to behaviour change, and methods of teaching and modelling behaviour that empower the patient to achieve and maintain improved health status. Goal setting and empowerment are important features’.