Fidelity of very brief interventions for physical activity in primary care: VBI Pilot Trial

Wendy Hardeman
Sally Pears, Maaike Bijker, Katie Morton, Stephen Sutton
on behalf of the Very Brief Interventions Team
In the UK, physical inactivity is the 4\textsuperscript{th} greatest risk factor contributing to total burden of disease\textsuperscript{1}

In England, only 6\% of men and 4\% of women meet physical activity (PA) recommendations when assessed objectively\textsuperscript{2}

Very brief interventions (VBIs, 5 mins max) in primary care could reach many adults and improve public health

However, uncertainty about:

- effectiveness and cost (Sally Pears presentation)
- whether health practitioners can deliver VBIs as planned

\textsuperscript{1} Murray et al, The Lancet 2013; \textsuperscript{2} Health Survey for England 2008
VBI Pilot Trial

- Preceded by development work and feasibility testing of four VBIs\(^1\)
- Pilot trial\(^2\) evaluated three promising VBIs to select best-performing VBI for the main trial\(^3\)
- VBIs delivered as part of preventative health checks in primary care targeting adults aged 40-74 years

\(^1\) Pears et al, BMC Public Health 2015; \(^2\) Pears et al, under review; \(^3\) ISRCTN72691150
VBI Pilot Trial

- Delivered by practice nurses and health care assistants following three hours of VBI training
- Fidelity was assessed using audio-recordings and interviews, alongside potential efficacy, cost and acceptability
Adults eligible to attend preventative health checks in 8 primary care practices

N=394; age (mean, SD) = 53 (9.1) years; 59% female

NHS Health Check plus Motivational VBI n=83
NHS Health Check plus Pedometer VBI n=74
NHS Health Check plus Combined VBI n=80
NHS Health Check only (Usual care) n=157

One-month Follow-up:
accelerometers, self-reported PA, costs, acceptability
Very Brief Interventions (VBI)

**All VBIs: face to face discussion**
- Feedback on current physical activity (PA)
- Physical activity recommendations

<table>
<thead>
<tr>
<th>Motivational VBI</th>
<th>Pedometer VBI</th>
<th>Combined VBI</th>
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<td>- Benefits of increasing PA</td>
<td>- 10,000 steps recommendation</td>
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<td>- Tips for increasing steps</td>
<td><strong>Motivational Booklet and Step Chart</strong></td>
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<td>- Tips for staying motivated</td>
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<td><strong>Motivational Booklet and Step Chart</strong></td>
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<td>- Signposting</td>
<td></td>
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</table>
## Motivational VBI

**Face-to-Face Discussion**  
*Behaviour: PA*  
1.1 Goal setting (behaviour)  
1.4 Action Planning

**Motivational Booklet**  
*Behaviour: PA*  
1.1 Goal setting (behaviour)  
1.2 Problem solving  
1.4 Action Planning  
1.5 Review behaviour goal(s)  
2.3 Self-monitoring of behaviour  
3.1 Social support (unspecified)  
5.1 Information about health consequences  
5.3 Information about social and environmental consequences  
5.4 Monitoring of emotional consequences  
5.6 Information about emotional consequences  
15.4 Self-talk

## Pedometer VBI

**Face-to-Face Discussion**  
*Behaviour: PA*  
1.1 Goal setting (behaviour)  
1.4 Action Planning  
2.3 Self-monitoring of behaviour  
8.7 Graded tasks  
12.5 Adding objects to the environment  
*Behaviour: using the pedometer*  
4.1 Instruction on how to perform the behaviour

**Pedometer Booklet and Step Chart**  
*Behaviour: PA*  
1.1 Goal setting (behaviour)  
1.4 Action Planning  
2.3 Self-monitoring of behaviour  
*Behaviour: using the pedometer*  
4.1 Instruction on how to perform the behaviour

## Combined VBI

**Face-to-Face Discussion**  
*Behaviour: PA*  
1.1 Goal setting (behaviour)  
1.4 Action Planning  
2.3 Self-monitoring of behaviour  
8.7 Graded tasks  
12.5 Adding objects to the environment  
*Behaviour: using the pedometer*  
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**Motivational Booklet and Step Chart**  
*Behaviour: PA*  
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5.6 Information about emotional consequences  
15.4 Self-talk  
*Behaviour: using the pedometer*  
4.1 Instruction on how to perform the behaviour
Fidelity assessment: audio-recordings

- Two participants per VBI per practice asked for consent to audio-record health check consultation (n=51)
- Two researchers independently assessed recordings, using a coding frame:
  - VBI duration (mins, sec)
  - Presence (coded as 1) or absence (coded as 0) of VBI components
  - Contamination

- Calculation of:
  - Mean proportion of specific VBI components delivered
  - Mean proportion of all VBI components delivered
  - Mean VBI duration
Fidelity assessment: Interviews

- Interviews with 12 practitioners
- Short interviews with 37/51 participants
- Interviews were transcribed
- Researcher conducted simple content analysis of
  - Practitioner views about delivery
  - Participant views about VBIs
### Findings: Audio-recordings

#### Minimal contamination

<table>
<thead>
<tr>
<th></th>
<th>Motivational VBI (n=11) Mean</th>
<th>Pedometer VBI (n=13) Mean</th>
<th>Combined VBI (n=16) Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PA Feedback</strong> (range 0 – 2)</td>
<td>0.8</td>
<td>0.8</td>
<td>0.9</td>
</tr>
<tr>
<td><strong>PA Recommendations</strong> (range 0 – 4)</td>
<td>2.8</td>
<td>2.7</td>
<td>3.1</td>
</tr>
<tr>
<td><strong>Motivational</strong> (range 0 – 8)</td>
<td>5.1</td>
<td>-</td>
<td>5.8</td>
</tr>
<tr>
<td><strong>Pedometer</strong> (range 0 – 8)</td>
<td>-</td>
<td>7.0</td>
<td>7.1</td>
</tr>
<tr>
<td><strong>Ending session</strong> (range 0 – 3)</td>
<td>1.8</td>
<td>1.8</td>
<td>1.6</td>
</tr>
<tr>
<td><strong>Overall Fidelity</strong> Mean /max possible score</td>
<td>10.5 /17</td>
<td>12.2 /17</td>
<td>18.6 /25</td>
</tr>
<tr>
<td><strong>Proportion</strong> delivered (%)</td>
<td>62%</td>
<td>72%</td>
<td>74%</td>
</tr>
<tr>
<td><strong>VBI Duration (mins, sec)</strong></td>
<td>6m 48s</td>
<td>5m 00s</td>
<td>9m 35s</td>
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</tbody>
</table>
Example: combined VBI (n=16)
Findings: Interviews

- Practitioners preferred pedometer VBI: brevity, ease of delivery and perceived participant response
- Participants found all VBIs acceptable

**THEMES**

**PRACTITIONERS** (n=12)
- Pedometer VBI the easiest and quickest to deliver
- Most confident delivering Pedometer VBI and Combined VBI
- Patients responded best to the pedometer VBI and combined VBI

**PARTICIPANTS** (n=37)
- Physical activity advice a good reminder of what was already known
- Pedometer: would use it regardless of intention to increase physical activity
- Physical activity advice with Combined VBI more tailored
Conclusions

• Practitioners delivered the VBIs with moderate to good fidelity

• Components least faithfully delivered were feedback on PA, motivational components and prompting goal setting and pedometer use

• Practitioners preferred pedometer VBI due to ease of delivery and 5-minute duration

• Participants responded positively to all VBIs
Factors that may have influenced fidelity of delivery:\(^1\):

- practitioner training
- inclusion in participant booklet
- familiarity with PA recommendations
- competence in giving feedback to inactive patients
- practitioners’ own physical activity levels

\(^1\) Campbell et al 2012 https://www.nice.org.uk/guidance/ph44/chapter/about-this-guidance
Recommendations

• Fidelity assessment in larger samples
• Assessment of practitioners’ BCT use in VBIs
• Methodological research: reliable and valid tools, weighing fidelity items, practical challenges
• Clinical practice:
  - feasible to train practitioners in evidence-based BCTs
  - improve training in goal setting, giving feedback, and motivational techniques\(^1\)
Thank you!

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Spare slides
<table>
<thead>
<tr>
<th>2. Individualised Physical Activity Assessment</th>
<th>2.2</th>
<th>2.3</th>
<th>2.4</th>
<th>3.1</th>
<th>3.2</th>
<th>3.3</th>
<th>3.4</th>
<th>3.5</th>
</tr>
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<tbody>
<tr>
<td>Nurse asks updated HC Template questions about PA (i.e. questions about type of work, exercise, walking, gardening etc.)</td>
<td>Nurse informs patient of their PAA status (e.g. could increase activity / doing plenty already)</td>
<td>Patient PAA status (according to what the nurse tells the patient)</td>
<td>Nurse uses 'gentle' language to inform patients of PAA status (e.g. could benefit from increasing activity)</td>
<td>Nurse asks if patient is aware of the recommendations</td>
<td>Patient is aware of recommendations (i.e. they state the recs as 30mins/day)</td>
<td>Nurse says that the recommendation is 30 mins a day, most days of the week</td>
<td>Nurse says that any activity that elevates heart rate/ breathing/ sweat counts as activity</td>
<td>Nurse says that activity is not just 'exercise'/every day activities count</td>
</tr>
<tr>
<td>Yes = 1  No = 0  Unsure = 9</td>
<td>Yes = 1  No = 0  Unsure = 9</td>
<td>Active = 1  Yes if Underactive = 1  Yes if Underactive = 2  Unsure = 9</td>
<td>No = 0  Yes if Active = 2  Unsure = 9</td>
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