A pilot trial of three very brief interventions for physical activity in primary care

Sally Pears
Maaike Bijker, Katie Morton, Stephen Sutton, Wendy Hardeman on behalf of the Very Brief Interventions Team

EHPS Annual Conference, Cyprus 1st-5th September 2015
Background

• Important to reduce public health burden of inactive lifestyles. Need for scalable interventions that are cost-effective.

• Very brief interventions (VBIs: < 5 mins) in primary care offer an ideal opportunity to deliver very brief physical activity advice to a large proportion of the population.

• Evidence that brief interventions (<30 mins) are potentially effective\(^1,2\) but uncertainty remains about the potential effectiveness and cost of VBIs.

**VBI Pilot Trial Aim:** to assess the potential effectiveness and cost of three very brief interventions (VBIs) to increase physical activity that could be delivered as part of preventive health checks in primary care.

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\(^1\) NICE 2013. Physical activity: brief advice for adults in primary care. NICE public health guidance 44.

\(^2\) Vijay GC et al. Are brief interventions to increase physical activity cost-effective? A systematic review. BJSM [In Press]
Pilot Trial Design

394 participants in 8 primary care practices in England
N=394; age (mean, SD) = 53 (9.1) years; 59% female

- Allocation ratio 1:1:1:2
- Sample-size calculation: powered to give an estimate of potential effectiveness based on 95% CI approach (Bayesian inference).

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
Measures

Potential Effectiveness

- **Objective PA:** average accelerometer counts per day [ActiGraph GT3X+]
- **Self-report PA:** Total physical activity energy expenditure (PAEE) [RPAQ v8]

Cost

- **Per-participant cost:** based on cost of materials and estimated cost of practitioner time

Feasibility* & Acceptability

- **VBI duration** [consultation audio-recordings]
- **VBI fidelity** [consultation audio-recordings]
- **VBI Acceptability** [interviews with participants and practitioners]

*Pilot trial presentation by Wendy Hardeman

*Parallel session: Fidelity of behaviour change interventions-challenges and future directions*

9.20am, Friday 4th Sept, 2015
# Very Brief Interventions (VBIs)

## 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>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Face-to-Face Discussion</strong></td>
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<td><strong>Face-to-Face Discussion</strong></td>
</tr>
<tr>
<td>• Benefits of increasing PA</td>
<td>• 10,000 steps recommendation</td>
<td>• Combination of Motivational and Pedometer VBIs</td>
</tr>
<tr>
<td>• Importance and confidence</td>
<td>• How to use the pedometer</td>
<td><strong>Motivational Booklet and Step Chart</strong></td>
</tr>
<tr>
<td>• Making a plan and keeping a diary</td>
<td>• Daily step goal and self-monitoring</td>
<td>• Combination of Motivation and Pedometer VBIs</td>
</tr>
</tbody>
</table>

### Motivational Booklet
- PA recommendations
- Benefits of increasing PA
- Importance and confidence
- Making a plan & keeping a diary
- Tips for increasing PA
- Tips for staying motivated
- Signposting

### Pedometer Booklet and Step Chart
- PA recommendations
- 10,000 steps recommendation
- How to use the pedometer
- Daily step goal and self-monitoring
- Tips for increasing steps
CONSORT Flow Diagram

Invited to attend HC and participate in study (n=2210)

Randomized (n=394)

Non-responders (n=1791)
Did not give consent (n=25)

Enrollment

Follow-up at 1 month

Lost to follow-up (n=22)

Lost to follow-up (n=23)

Lost to follow-up (n=16)

Lost to follow-up (n=33)

Analysis

Analysed n=61 (73%)

Analysed n=51 (69%)

Analysed n=64 (80%)

Analysed n=124 (79%)

Motivational VBI

n=83

Pedometer VBI

n=74

Combined VBI

n=80

Usual care

n=157

Allocation
### Results: Potential Effectiveness

Posterior probability of positive effect was estimated to be **73% for both the Motivational and Pedometer VBIs**, and **46% for the Combined VBI**.

Means of the other accelerometer-derived measures and self-reported measures of PA were similar for all VBI arms relative to Usual Care.

1 Values for cpm are means and differences from the control arm mean (with 95% confidence interval) whereas to account for skewed distributions the Time in activity and self-report variables are presented as relative percentage increases or decreases compared to the control arm.

<table>
<thead>
<tr>
<th></th>
<th>Usual care</th>
<th>Motivational</th>
<th>Pedometer</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Objective PA</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Counts per minute (cpm)</td>
<td>n=111</td>
<td>n=54</td>
<td>n=37</td>
<td>N=52</td>
</tr>
<tr>
<td>Mean (95% CI)</td>
<td>Mean (95% CI)</td>
<td>Comparison of means (95% CI)</td>
<td>Mean (95% CI)</td>
<td>Comparison of means (95% CI)</td>
</tr>
<tr>
<td>Objective PA</td>
<td>636 (597, 674)</td>
<td>656 (600, 712)</td>
<td>+20.3 (-45.0, +85.7)</td>
<td>659 (581, 738)</td>
</tr>
<tr>
<td>Time in MVPA (min/day)</td>
<td>73.1 (67.0, 79.8)</td>
<td>75.0 (67.7, 83.0)</td>
<td>+2.6% (-10.7%, 17.9%)</td>
<td>74.7 (64.2, 86.8)</td>
</tr>
<tr>
<td>Time in sedentary/light activity (min/day)</td>
<td>809.5 (790.8, 828.7)</td>
<td>809.9 (798.6, 821.5)</td>
<td>-1.1% (-3.9%, +1.7%)</td>
<td>800.6 (780.2, 821.7)</td>
</tr>
<tr>
<td>Self-report PA</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total PAEE (kJ/kg/day)</td>
<td>32.2 (28.2, 36.9)</td>
<td>39.2 (31.5, 48.9)</td>
<td>+21.7% (-2.9%, +52.5%)</td>
<td>32.2 (26.7, 38.8)</td>
</tr>
</tbody>
</table>
Results: Cost

- All VBIs were of low cost.
- Cost was higher for both the Pedometer and Combined VBI (added cost of the pedometer).

<table>
<thead>
<tr>
<th></th>
<th>Motivational</th>
<th>Pedometer</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated cost of practitioner time*</td>
<td>£4.99</td>
<td>£3.67</td>
<td>£7.03</td>
</tr>
<tr>
<td>Actual cost of printed materials</td>
<td>£1.84</td>
<td>£1.42</td>
<td>£1.95</td>
</tr>
<tr>
<td>Actual cost of pedometer</td>
<td>£0</td>
<td>£12.00</td>
<td>£12.00</td>
</tr>
<tr>
<td>Total cost of VBI per participant</td>
<td>£6.83</td>
<td>£17.09</td>
<td>£20.98</td>
</tr>
</tbody>
</table>

* Practitioner time valued at £0.732 per minute, based on the cost of a practice nurse contact at 2013 prices

Feasibility

- **VBI duration:** Only VBI 2 was deliverable within 5 minutes.
Results Summary

Potential Effectiveness$^3,^4$
- Similar levels of objectively measured or self-reported PA when comparing each VBI with usual care.
- Probability of a positive effect on PA was higher for the Motivational and Pedometer VBIs.

Cost
- Average cost of the VBIs ranged from £6.83 to £20.98 per patient.

Feasibility
- Pedometer VBI was the only VBI that was deliverable in 5 minutes.

Pedometer VBI was chosen for evaluation in a large-scale RCT.

Conclusions

• Very brief interventions for physical activity in primary care are inexpensive and can potentially increase physical activity.

• A large-scale RCT* is assessing the effects on objectively measured physical activity, cost-effectiveness and potential public health impact of the Pedometer intervention.

Acknowledgements

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• Email: sp643@medschl.cam.ac.uk
• VBI Programme: http://tiny.cc/VBIprog

Stephen Sutton          Ann Louise Kinmonth
Wendy Hardeman          Simon Griffin
Katie Morton            Vijay Singh GC
Sally Pears             Toby Prevost
Maaike Bijker           Joana Vasconcelos
Richard Parker          Soren Brage
Joanna Mitchell          Kate Westgate
Ed Wilson

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**Step It Up**

**Face-to-face discussion:**
- Feedback on PA
- PA recommendations
- How to use pedometer
- Steps/day goal
- How to self-monitor

**Step It Up Booklet:**
- Feedback on PA
- PA recommendations
- How to use pedometer
- Steps/day goal
- How to self-monitor
- Benefits of PA
- Tips for increasing PA
- Local resources info

**Pedometer & Step Chart**

- 1.1 Goal setting (behaviour)
- 1.4 Action Planning
- 2.2 Feedback on behaviour
- 4.1 Instruction on how to perform the behaviour
- 8.7 Graded tasks
- 2.3 Self-monitoring of behaviour

- 5.1 Information about health consequences
- 5.3 Information about social and environmental consequences
- 5.6 Information about emotional consequences
- 12.5 Adding objects to the environment

**Walk**

**Dance**

**Run**

**Stretch**

**Move!**
VBI Programme Overview

**VBI Development**
- **Sources of Evidence**
  - Systematic reviews
  - Behaviour change technique (BCT) taxonomy
  - Qualitative research
  - Cost estimation
  - Stakeholder consultation
  - Team discussion
- **VBI Shortlist**
  - VBI 1: Motivational
  - VBI 2: Pedometer
  - VBI 3: Combined (Motivational & Pedometer)

**Feasibility Study**
- Assessed the feasibility & acceptability of four VBIs.
- Optimised VBI procedures, materials and practitioner training
- Decided which VBIs to evaluate further in a pilot trial.

**Pilot Trial**
- Assessed the potential effectiveness, feasibility, acceptability and cost of the VBIs.
- Selected best-best VBI for evaluation in a full-scale RCT, evaluating effectiveness and cost-effectiveness.
# Very Brief Interventions: BCTs

## 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

**Pedometer Booklet and Step Chart**

*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

**Motivational Booklet and Step Chart**

*Behaviour: using the pedometer*

4.1 Instruction on how to perform the behaviour

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TPB Questionnaire Items

The items were constructed according to the recommendations by Ajzen and measured on a Likert-type scale ranging from 1 (strongly disagree) to 5 (strongly agree).

**Instrumental Attitude:** two items (Cronbach’s α=0.49):
- ‘Being more physically active in the next 4 weeks would be good for me’,
- ‘For me, being more physically active in the next 4 weeks would be harmful’

**Affective attitude:** two items (Cronbach’s α=0.62):
- ‘For me, being more physically active in the next 4 weeks would be boring’
- ‘For me, being more physically active in the next 4 weeks would be enjoyable’

**Subjective Norm:** two items (Cronbach’s α=0.49):
- ‘Most people who are important to me would want me to be more physically active in the next 4 weeks’
- ‘It is expected of me that I will be more physically active in the next 4 weeks’

**Perceived behavioral control:** two items (Cronbach’s α=0.54):
- ‘It would be difficult for me to be more physically active in the next 4 weeks even if I wanted to’
- ‘I am confident I could be more physically active in the next 4 weeks, if I wanted to’

**Behavioral intention:** two items (Cronbach’s α=0.88):
- ‘It is likely that I will be more physically active in the next 4 weeks’
- ‘I intend to be more physically active in the next 4 weeks’
Invited to attend HC and participate in study (n=2210)

Non-responders (n=1791)
Did not consent into study (n=25) (e.g. no shows)

Randomized (n=394)
[1:1:1:2]

Follow-Up at 1 month

Lost to follow-up (n=22)

Motivational
n=83

Lost to follow-up (n=23)

Pedometer
n=74

Lost to follow-up (n=16)

Combined
n=80

Lost to follow-up (n=33)

Usual care
n=157

Analysis

Analysed n=61 (73%)
Accelerometer n=54
• Insufficient wear time n=7
Questionnaire n=59
• Not returned n=2

Analysed n=51 (69%)
Accelerometer n=37
• Insufficient wear time n=14
Questionnaire n=43
• Not returned n=7

Analysed n=64 (80%)
Accelerometer n=52
• Insufficient wear time n=12
Questionnaire n=59
• Not returned n=4

Analysed n=124 (79%)
Accelerometer n=111
• Insufficient wear time n=13
Questionnaire n=120
• Not returned n=3
Results: Participants

• 394 participants recruited and randomised between April 2013 and Feb 2014
• Demographics show participants were comparable across arms

<table>
<thead>
<tr>
<th></th>
<th>Total Sample n=394</th>
<th>Usual Care n=157</th>
<th>Motivational n=83</th>
<th>Pedometer n=74</th>
<th>Combined n=80</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age in years</strong></td>
<td>52.9 (9.1)</td>
<td>53.9 (10.1)</td>
<td>52.1 (8.1)</td>
<td>53.3 (8.4)</td>
<td>51.3 (8.4)</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td>59 (232)</td>
<td>59 (92)</td>
<td>54 (45)</td>
<td>61 (45)</td>
<td>62 (50)</td>
</tr>
<tr>
<td>% female (n)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td>92 (372)</td>
<td>94 (147)</td>
<td>92 (76)</td>
<td>97 (72)</td>
<td>96 (77)</td>
</tr>
<tr>
<td>% white (n)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Employment Status</strong></td>
<td>72 (281)</td>
<td>68 (106)¹</td>
<td>70 (58)</td>
<td>79 (56)¹</td>
<td>76 (61)</td>
</tr>
<tr>
<td>% employed (n)</td>
<td></td>
<td></td>
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</tbody>
</table>

¹ Missing values for employment status reduced the denominator to 71 in the Pedometer arm and 156 in the Control arm.
Results: Objective Physical Activity

<table>
<thead>
<tr>
<th></th>
<th>Usual care n=111</th>
<th>Motivational n=54</th>
<th>Pedometer n=37</th>
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<tbody>
<tr>
<td>Counts per minute (cpm)</td>
<td>636 (597, 674)</td>
<td>656 (600, 712)</td>
<td>659 (581, 738)</td>
<td>632 (590, 675)</td>
</tr>
<tr>
<td></td>
<td>+20.3 (-45.0, +85.7)</td>
<td></td>
<td></td>
<td>-3.1 (-69.3, +63.1)</td>
</tr>
<tr>
<td>Step counts</td>
<td>7944 (7370, 8518)</td>
<td>7971 (7252, 8691)</td>
<td>7844 (6921, 8766)</td>
<td>8162 (7464, 8859)</td>
</tr>
<tr>
<td></td>
<td>+27 (-894, +949)</td>
<td></td>
<td>-101 (-1155, +954)</td>
<td>+218 (-716, +1151)</td>
</tr>
<tr>
<td>Time in MVPA (min/day)</td>
<td>73.1 (67.0, 79.8)</td>
<td>75.0 (67.7, 83.0)</td>
<td>74.7 (64.2, 86.8)</td>
<td>75.8 (68.6, 83.8)</td>
</tr>
<tr>
<td></td>
<td>+2.6% (-10.7%, 17.9%)</td>
<td></td>
<td>+2.2% (-12.8%, +19.8%)</td>
<td>+3.8% (-9.8%, +19.5%)</td>
</tr>
<tr>
<td>Time in sedentary/light activity (min/day)</td>
<td>809.5 (790.8, 828.7)</td>
<td>809.9 (798.6, 821.5)</td>
<td>800.6 (780.2, 821.7)</td>
<td>804.2 (775.7, 833.6)</td>
</tr>
<tr>
<td></td>
<td>-1.1% (-3.9%, +1.7%)</td>
<td></td>
<td>-0.7% (-3.9%, +2.6%)</td>
<td>-0.1% (-2.9%, +2.9%)</td>
</tr>
</tbody>
</table>

1 Values for these variables are means and differences from the control arm mean (with 95% confidence interval) whereas to account for skewed distributions the Time in activity variables are presented as relative percentage increases or decreases compared to the control arm.  
2 Comparisons are presented unadjusted. Conclusions were unchanged on adjustment for age.

- Posterior probability of positive effect was estimated to be **73% for both the Motivational and Pedometer VBIs, and 46% for the Combined VBI.**
## Results: Self-report Physical Activity

<table>
<thead>
<tr>
<th></th>
<th>Usual care n=120&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Motivational n=59&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Pedometer n=43&lt;sup&gt;2&lt;/sup&gt;</th>
<th>Combined N=59&lt;sup&gt;2&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean (95% CI)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total PAEE (kJ/kg/day)</td>
<td>32.2 (28.2, 36.9)</td>
<td>39.2 (31.5, 48.9)</td>
<td>32.2 (26.7, 38.8)</td>
<td>33.0 (28.3, 38.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+21.7% (-2.9%, +52.5%)</td>
<td>-0.2% (-22.4%, +28.4%)</td>
<td>+2.4% (-18.3%, +28.3%)</td>
</tr>
<tr>
<td>Home-based PAEE (kJ/kg/day)</td>
<td>2.3 (1.9, 2.8)</td>
<td>2.1 (1.6, 2.8)</td>
<td>2.1 (1.6, 2.8)</td>
<td>2.8 (2.2, 3.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-9.5% (-33.6%, +23.3%)</td>
<td>-7.2% (-34.4%, +31.1%)</td>
<td>+19.7% (-12.1%, +63.2%)</td>
</tr>
<tr>
<td>Work-based PAEE (kJ/kg/day)</td>
<td>18.2 (15.6, 21.1)</td>
<td>21.2 (16.9, 26.4)</td>
<td>18.4 (14.6, 23.1)</td>
<td>17.9 (14.9, 21.5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+16.6% (-9.0%, +49.4%)</td>
<td>+1.1% (-22.7%, +32.2%)</td>
<td>-1.3% (-23.0%, +26.5%)</td>
</tr>
<tr>
<td>Leisure-based PAEE (kJ/kg/day)</td>
<td>11.0 (8.6, 14.0)</td>
<td>16.5 (12.4, 21.8)</td>
<td>8.7 (5.8, 13.2)</td>
<td>11.0 (8.4, 14.4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+50.3% (+2.1%, +121.2%)</td>
<td>-20.3% (-48.3%, +22.8%)</td>
<td>+0.7% (-31.6%, 48.2%)</td>
</tr>
<tr>
<td>Commuting PAEE (kJ/kg/day)</td>
<td>0.3 (0.2, 0.6)</td>
<td>0.4 (0.2, 0.9)</td>
<td>0.3 (0.1, 0.7)</td>
<td>0.6 (0.3, 1.2)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>+29.8% (-43.2%, +196.8%)</td>
<td>-8.5% (-62.8%, +125.2%)</td>
<td>78.4% (-21.5%, +305.5%)</td>
</tr>
<tr>
<td>Screen/TV time (hours/day)&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3.04 (2.77, 3.31)</td>
<td>2.71 (2.35, 3.08)</td>
<td>2.72 (2.32, 3.13)</td>
<td>3.11 (2.75, 3.47)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.32 (-0.77, +0.12)</td>
<td>-0.31 (-0.81, +0.19)</td>
<td>+0.07 (-0.37, +0.52)</td>
</tr>
</tbody>
</table>

<sup>1</sup> Values for this variable are means and differences from the control arm mean (with 95% confidence interval) whereas to account for skewed distributions the other variables are presented as relative percentage increases or decreases compared to the control arm.

<sup>2</sup> Denominators (N) differed for Work based PAEE (79, 44, 35, 44) and Commuting PAEE (77, 44, 34, 45).

<sup>3</sup> Comparisons are presented unadjusted. Conclusions were unchanged on adjustment for age.

PAEE: physical activity energy expenditure
## Results: Beliefs about increasing PA

<table>
<thead>
<tr>
<th>Instrumental Attitude (Alpha=0.49)</th>
<th>Mean (95% CI)</th>
<th>Mean (95% CI)</th>
<th>Comparison of means (95% CI)</th>
<th>Mean 95% (CI)</th>
<th>Comparison of means (95% CI)</th>
<th>Mean 95% CI</th>
<th>Comparison of means (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usual care n=115</td>
<td>4.15 (0.75)</td>
<td>4.32 (0.79)</td>
<td>+0.17 (-0.07, 0.41)</td>
<td>4.23 (0.86)</td>
<td>+0.07 (-0.19, 0.34)</td>
<td>4.51 (0.55)</td>
<td>+0.36 (0.12, 0.59)</td>
</tr>
<tr>
<td>Motivational n=56</td>
<td>4.32 (0.79)</td>
<td>4.01 (0.82)</td>
<td>+0.28 (0.03, 0.53)</td>
<td>3.89 (0.76)</td>
<td>+0.16 (-0.12, 0.44)</td>
<td>4.10 (0.54)</td>
<td>+0.37 (0.11, 0.62)</td>
</tr>
<tr>
<td>Pedometer n=42</td>
<td>3.31 (1.05)</td>
<td>3.21 (0.79)</td>
<td>+0.24 (-0.05, 0.52)</td>
<td>3.14 (0.79)</td>
<td>+0.14 (-0.16, 0.45)</td>
<td>3.26 (0.83)</td>
<td>+0.19 (-0.08, 0.47)</td>
</tr>
<tr>
<td>Combined N=57</td>
<td>3.42 (0.90)</td>
<td>3.36 (0.94)</td>
<td>+0.29 (-0.01, 0.58)</td>
<td>3.56 (0.94)</td>
<td>-0.06 (-0.39, 0.27)</td>
<td>3.81 (0.91)</td>
<td>+0.40 (0.10, 0.69)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Affective Attitude (Alpha=0.62)</th>
<th>Mean (95% CI)</th>
<th>Mean (95% CI)</th>
<th>Comparison of means (95% CI)</th>
<th>Mean 95% (CI)</th>
<th>Comparison of means (95% CI)</th>
<th>Mean 95% CI</th>
<th>Comparison of means (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usual care n=115</td>
<td>3.07 (0.83)</td>
<td>3.14 (1.05)</td>
<td>+0.24 (-0.05, 0.52)</td>
<td>3.05 (0.83)</td>
<td>+0.14 (-0.16, 0.45)</td>
<td>3.26 (0.83)</td>
<td>+0.19 (-0.08, 0.47)</td>
</tr>
<tr>
<td>Motivational n=56</td>
<td>3.73 (0.87)</td>
<td>3.82 (0.90)</td>
<td>+0.36 (0.08, 0.64)</td>
<td>3.68 (0.86)</td>
<td>+0.22 (-0.09, 0.54)</td>
<td>3.86 (0.82)</td>
<td>+0.40 (0.12, 0.68)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Subjective norm (Alpha=0.49)</th>
<th>Mean (95% CI)</th>
<th>Mean (95% CI)</th>
<th>Comparison of means (95% CI)</th>
<th>Mean 95% (CI)</th>
<th>Comparison of means (95% CI)</th>
<th>Mean 95% CI</th>
<th>Comparison of means (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usual care n=115</td>
<td>3.42 (0.90)</td>
<td>3.71 (0.94)</td>
<td>+0.29 (-0.01, 0.58)</td>
<td>3.56 (0.94)</td>
<td>-0.06 (-0.39, 0.27)</td>
<td>3.81 (0.91)</td>
<td>+0.40 (0.10, 0.69)</td>
</tr>
<tr>
<td>Motivational n=56</td>
<td>3.31 (1.05)</td>
<td>3.21 (0.79)</td>
<td>+0.24 (-0.05, 0.52)</td>
<td>3.14 (0.79)</td>
<td>+0.14 (-0.16, 0.45)</td>
<td>3.26 (0.83)</td>
<td>+0.19 (-0.08, 0.47)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perceived behavioural control (Alpha=0.54)</th>
<th>Mean (95% CI)</th>
<th>Mean (95% CI)</th>
<th>Comparison of means (95% CI)</th>
<th>Mean 95% (CI)</th>
<th>Comparison of means (95% CI)</th>
<th>Mean 95% CI</th>
<th>Comparison of means (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usual care n=115</td>
<td>3.42 (0.90)</td>
<td>3.71 (0.94)</td>
<td>+0.29 (-0.01, 0.58)</td>
<td>3.56 (0.94)</td>
<td>-0.06 (-0.39, 0.27)</td>
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<td>+0.19 (-0.08, 0.47)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Behavioural Intention (Alpha=0.88)</th>
<th>Mean (95% CI)</th>
<th>Mean (95% CI)</th>
<th>Comparison of means (95% CI)</th>
<th>Mean 95% (CI)</th>
<th>Comparison of means (95% CI)</th>
<th>Mean 95% CI</th>
<th>Comparison of means (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Usual care n=115</td>
<td>3.46 (0.89)</td>
<td>3.82 (0.90)</td>
<td>+0.36 (0.08, 0.64)</td>
<td>3.68 (0.86)</td>
<td>+0.22 (-0.09, 0.54)</td>
<td>3.86 (0.82)</td>
<td>+0.40 (0.12, 0.68)</td>
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<td>Motivational n=56</td>
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</tbody>
</table>

1 Sample size is one fewer than indicated.
2 Sample size is two fewer than indicated.
3 A Cronbach’s alpha coefficient below 0.7 indicates low internal consistency of the two-item scale.
4 Comparisons are presented unadjusted. Conclusions were unchanged on adjustment for age.
Results: Feasibility and Acceptability

**Feasibility**

<table>
<thead>
<tr>
<th></th>
<th>Motivational</th>
<th>Pedometer</th>
<th>Combined</th>
</tr>
</thead>
<tbody>
<tr>
<td>N (useable recordings)</td>
<td>11</td>
<td>13</td>
<td>16</td>
</tr>
<tr>
<td>Mean Fidelity</td>
<td>62%</td>
<td>72%</td>
<td>74%</td>
</tr>
<tr>
<td>Mean VBI Duration</td>
<td>6m 48s</td>
<td>5m 00s</td>
<td>9m 35s</td>
</tr>
</tbody>
</table>

- All VBIs delivered with moderate to good fidelity.
- Only VBI 2 was deliverable within 5 minutes.

**Acceptability**

- All VBIs acceptable to patients and practitioners.
- Pedometer VBI was most acceptable to participants and practitioners.