

Fidelity of a very brief pedometer intervention to promote physical activity in preventative health checks

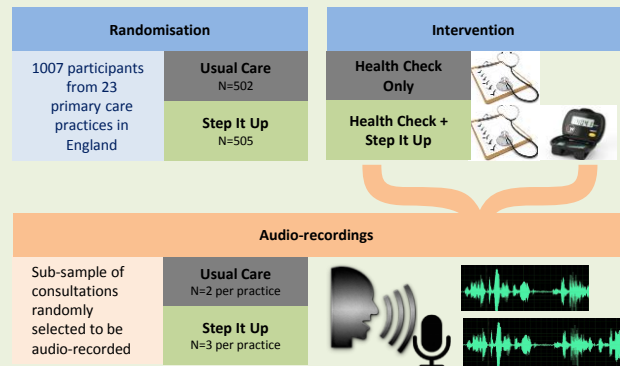
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BACKGROUND AND AIM:

- We conducted a randomised controlled trial of a very brief (<5 minutes) pedometer-based intervention for physical activity ('Step It Up') targeting adults aged 40-74 years in primary care, and found no evidence of a positive effect on physical activity.
- The aim of this study was to assess fidelity of intervention delivery and examine whether this could illuminate the trial findings.

METHODS



Intervention Duration Fidelity and Contamination

- Three independent coders listened to the audio-recordings and coded:
 - Step It Up Intervention Duration (in minutes and seconds)
 - The presence (1) or absence (0) of each of 15 Step It Up intervention items.
- The average and percentage fidelity/contamination scores were calculated for each recording:
 - Fidelity Score** = number of Step It Up Intervention Items delivered in the **Step It Up** group (total score out of a possible 15 items).
 - Contamination Score** = number of components delivered in the **Usual Care** group (total score out of a possible 15 items).
- Coder 1 (SP) assessed all the tapes and Coder 2 (MVE) and Coder 3 (JM) assessed half of the tapes. Inter-rater agreement was calculated for each item (yes/no) and converted to a percentage. Coder 1's scores were used for each item where agreement was 75% or over.

RESULTS

- 63 tapes returned by 13 out of 23 practices (**Usual Care** N=26; **Step It Up** N=37).
- Inter-rater agreement: good (only one item showed <75% agreement).
- Intervention Duration (Step It Up group):** Mean = 3m 06s (see Table 1).

Intervention Fidelity (Step It Up group):

- Mean Fidelity Score = 9/15 items (60%), see Table 1.
- Fidelity varied widely across practices and practitioners (data not shown).
- All interventions delivered in <=1m 45s showed <53% fidelity while those delivered in >1m 45s mostly showed >60% fidelity (data not shown).
- Fidelity was <60% for 6 individual items, see Figure 1. These items included giving feedback on PA (Item 1) and items intended to promote participants' engagement (Items 2, 6, 14 and 15).

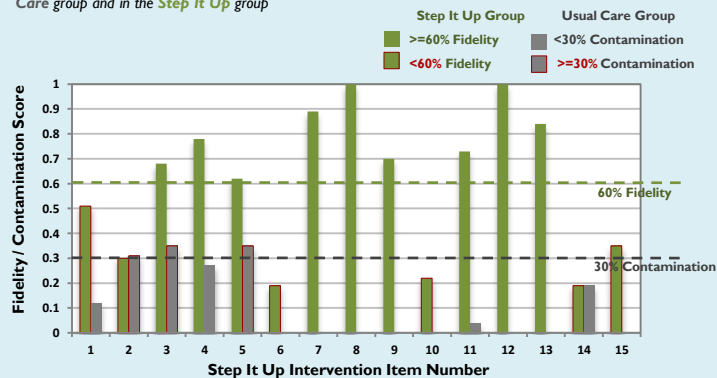
Intervention Contamination (Usual Care group):

- Mean Contamination Score = 1.6/15 items (10.8%), see Table 1.
- Contamination was > 30% for 3 individual items, see Figure 1.

Table 1: Average duration of the Step It Up intervention; and average and percentage fidelity/contamination scores for Step It Up Intervention Items (score out of 15) in both the Usual Care group and in the Step It Up group

	Step It Up Duration Mean (SD) Min - Max	Fidelity / Contamination Score /15 (%)
Usual Care N=26	N/A	1.6 /15 (10.8%)
Step It Up N=37	3m 09s (1m 51s) 16s - 8m00s	9.0 /15 (60.0%)

Figure 1: Average fidelity/contamination scores for each individual Step It Up Intervention Item in both the Usual Care group and in the Step It Up group



- GIVES patient feedback on their current activity [BCT 2.2] ↓
- ASKS if the patient is aware of the recommendations ↓↑
- TELLS the patient the recommendations: 30mins on most days [BCTs 1.1 & 1.4] ↑
- TELLS the patient the recommendations: 10,000 steps a day [BCTs 1.1 & 1.4]
- EMPHASIZES that any activity that elevates heart/breathing rate counts, e.g. brisk walking ↑
- EXPLAINS that using a pedometer can be an effective way of increasing activity ↓
- SHOWS the patient how to wear the pedometer and use it to measure steps/day. [BCTs 4.1 & 2.3]
- GIVES the patient the pedometer [BCT 12.5]
- SHOWS the patient how to use the Step Chart to set a step goal & monitor daily steps. [BCTs 1.1, 1.4 & 2.3]
- ENCOURAGES the patient to start with a smaller goal and try to increase their goal each week [BCT 8.7] ↓
- EXPLAINS how to calculate miles walked (2,000 steps = 1 mile)
- GIVES the patient the Step It Up booklet and Step Chart. [BCTs 12.5]
- EXPLAINS that the rest of the booklet contains other useful tips and information.
- ASKS if patient has any questions ↓
- ASKS the patient if they are willing to 'give it a try' ↓

↓ < 60% fidelity (item delivered less than 60% of the time in the Step It Up group)

↑ > 30% contamination (item delivered more than 30% of the time in the Usual Care group)

CONCLUSIONS

- Obtaining audio-recordings in a pragmatic trial in primary care was challenging, and we do not know whether the sample of tapes was representative.
- Brief physical activity advice in the control group may have diluted any intervention effect. However, **contamination was minimal** so this explanation is unlikely. Instead, **moderate overall fidelity (60%), poor delivery of 6/15 intervention items, and wide variation in fidelity** among practices/practitioners **may explain the trial findings.**
- Practitioner training in intervention delivery was brief (60-90 minutes out of 3hrs total training time) as training in study procedures (online randomisation, taking consent) proved time-consuming and stressful for some practitioners. Consequently, **practitioners may have had limited time to master delivery** of all intervention items.
- Intervention duration was 2mins less than intended.** This may be due to practitioners being rushed for time, lacking skills in engaging participants in the discussion, lacking confidence in delivering very brief advice, and perceptions that physical activity advice is ineffective and not valuable.