

Exploring the use of physical activity loyalty cards for behaviour change in public health: randomised controlled trial

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Abstract

Background Physical inactivity is a major public health concern, and more innovative approaches are urgently needed to address it. The UK Government supports the use of incentives and so-called nudges to encourage healthy behaviour changes, and has encouraged business sector involvement in public health through the Public Health Responsibility Deal. To test the effectiveness of provision of incentives to encourage adults to increase their physical activity, we recruited 406 adults from a workplace setting (office-based) to take part in an assessor-blind randomised controlled trial.

Methods We developed the physical activity loyalty card scheme, which integrates a novel physical activity tracking system with web-based monitoring (palcard). Participants were recruited from two buildings at Northern Ireland's main government offices and were randomly allocated (grouped by building [$n=2$] to reduce contamination) to either incentive group ($n=199$) or no incentive group ($n=207$). We included participants aged 16–65 years, based at the worksite 4 days or more per week and for 6 h or more per day, and able to complete 15 min of moderate-paced walking (self-report). Exclusion criteria included having received specific advice by a general practitioner not to exercise. A statistician not involved in administration of the trial prepared a computer-generated random allocation sequence. Random assignments were placed in individually numbered, sealed envelopes by the statistician to ensure concealment of allocation. Only the assessor was masked to assignment. Sensors were placed along footpaths and the gym in the workplace. Participants scanned their loyalty card at the sensor when undertaking physical activity (eg, walking), which logged activity. Participants in the incentive group monitored their physical activity, collected points, and received rewards (retail vouchers) for minutes of physical activity completed over the 12-week intervention. Rewards were vouchers sponsored by local retailers. Participants in the no incentive group used their loyalty card to self-monitor their physical activity but were not able to earn points or receive rewards. The primary outcome was change in minutes of moderate to vigorous physical activity with the Global Physical Activity Questionnaire, measured at baseline, week 12, and 6 months. Activity was objectively measured with the tracking system over the 12-week intervention. Mann Whitney *U* tests were done to assess change between groups.

Findings The mean age of participants was 43·32 years (SD 9·37), and 272 (67%) were women. We obtained follow-up data from 353 (87%) participants at week 12 and 341 (84%) at 6 months. At week 12, participants in the incentive group increased moderate to vigorous physical activity by a median of 60 min per week (IQR –10 to 120) compared with 30 min per week (–60 to 90) in the no incentive group ($p=0·05$). At 6 months, participants in the incentive group had increased their moderate to vigorous physical activity by 30 min per week (–60 to 100) from baseline compared with 0 min per week (–115 to 1110) in the no incentive group ($p=0·099$). We noted no significant differences between groups for use of loyalty card ($p=0·18$). Participants in the incentive group recorded a mean of 60·22 min (95% CI 50·90–69·55) of physical activity per week with their loyalty card on week 1 and 23·56 min (17·06–30·06) at week 12, which was similar to that for those in the no incentive group (59·74 min, 51·24–68·23, at week 1; 20·25 min, 14·45–26·06, at week 12; $p=0·94$ for differences between groups at week 1; $p=0·45$ for differences between groups at week 12).

Interpretation Financial incentives showed a short-term behaviour change in physical activity. This innovative study contributes to the necessary evidence base, and has important implications for physical activity promotion and business engagement in health. The optimum incentive-based approach needs to be established. Results should be interpreted with some caution as the analyses of secondary outcomes were not adjusted for multiple comparisons.

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Contributors

All authors had full access to the data and take responsibility for the integrity of the data and the accuracy of the data analyses. RFH, FK, and MAT were responsible for the study concept and design. RFH and MD were responsible for acquisition of data. RFH and MS analysed and interpreted data. RFH drafted the report. All authors critically revised the report for important intellectual content. Funding was obtained by FK and MAT.

Conflicts of interest

We declare that we have no conflicts of interest.

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