

How effective is community physical activity promotion in areas of deprivation for inactive adults? A pragmatic observational evaluation of the 'Active Herts' physical activity programme



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Introduction

Systematic review and meta-analysis

A systematic review and meta-analysis of randomised controlled trials of physical activity interventions for healthy inactive adults showed changes in physical activity up to a year after intervention and highlighted several behaviour change techniques (BCTs) that were associated with effective interventions (e.g. Action planning, Prompts/cues; Howlett, Trivedi, Troop, & Chater, 2018).

Drawing upon theory

Behaviour results from sufficient Capability, Opportunity, and Motivation (COM-B; Michie, van Stralen, & West, 2011). Capability (ability to create habits, action planning, self-monitoring) and Motivation (intention, self-efficacy, exercise self-identity) were found to be important drivers of moderate-to-vigorous physical activity (MVPA, 50% variance explained; Howlett, Schulz, Trivedi, Troop, & Chater, 2017).

The Active Herts programme

The Active Herts programme (Howlett, Jones, Bains, & Chater, 2017) implemented the most effective BCTs (highlighted in the review) and evaluated key drivers of MVPA (from the COM-B analysis) as secondary outcomes. This evaluation allowed analysis of whether physical activity increased and why from a theoretical perspective.

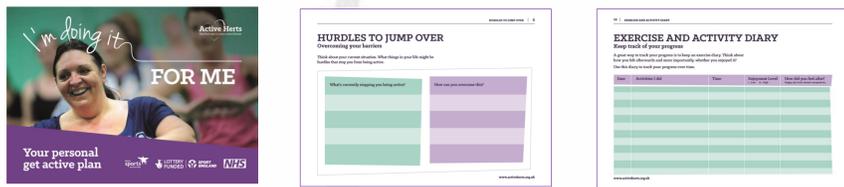
Method

Participants

Inactive adults (N = 435) residing in four Hertfordshire localities (Watford, Broxbourne, Hertsmeare, Stevenage), with additional cardiovascular disease risk factors and/or mental health issues.

Design

In two areas programme-users received a BCT booklet, consultations, a booster phone call, motivational text messages, and signposting to 12 weeks of exercise classes (standard group). In another two areas programme-users also received 12 weeks of free tailored exercise classes, with optional exercise 'buddies' (enhanced group).



Deliver training

Four Get Active Specialists received training on obesity, mental health, and behaviour change. An additional two-day workshop and quarterly boosters were led by AC, and covered motivational interviewing, behaviour change theory, and health coaching.

Fidelity

Get Active Specialists were video-recorded to gauge baseline skills and then asked to audio-record random consultations and reviewed the audios at quarterly sessions with the trainers (AC, NH). Consultations were scored with the Motivational Interviewing Treatment Integrity coding scheme (Moyers, Martin, Manuel, Miller, & Ernst, 2010) and a checklist of BCTs.

Analysis

Mixed ANOVAs analysed changes in physical activity, sporting participation, sitting (primary outcomes), mental wellbeing, health perception, life satisfaction, and COM-B measures (secondary outcomes). Secondary analyses explored whether COM-B measures predicted MVPA at baseline, 3, and 6 months, and changes at 3 and 6 months using path analyses (Figure 1).

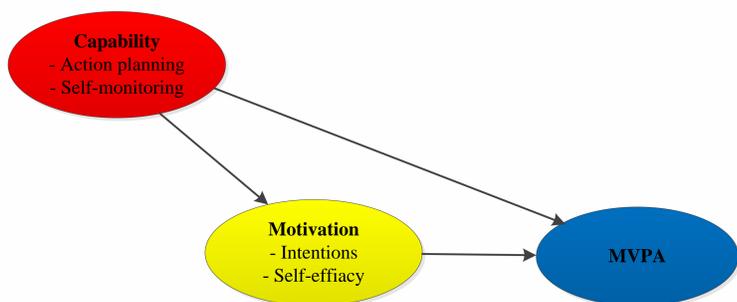


Figure 1: Theory of behaviour (change) explored in secondary analyses

References

- Howlett, N., Jones, A., Bain, L., & Chater, A. (2017). How effective is community physical activity promotion in areas of deprivation for inactive adults with cardiovascular disease risk and/or mental health concerns? Study protocol for a pragmatic observational evaluation of the 'Active Herts' physical activity programme. *BMJ Open*, 7(11), e017783.
- Howlett, N., Schulz, J., Trivedi, D., Troop, N., & Chater, A. (2017). A prospective study exploring the construct and predictive validity of the COM-B model for physical activity. *Journal of Health Psychology*.
- Howlett, N., Trivedi, D., Troop, N. A., & Chater, A. M. (2018). Are physical activity interventions for healthy inactive adults effective in promoting behavior change and maintenance, and which behavior change techniques are effective? A systematic review and meta-analysis. *Translational Behavioral Medicine*.
- Michie, S., van Stralen, M. M., & West, R. (2011). The behaviour change wheel: a new method for characterising and designing behaviour change interventions. *Implementation Science*, 6(1), 42.
- Moyers, T., Martin, T., Manuel, J., Miller, W., & Ernst, D. (2010). *Revised global scales: Motivational interviewing treatment integrity 3.1*. (MITI 3.1. 1). Unpublished manuscript, University of New Mexico, Albuquerque, NM.

Results

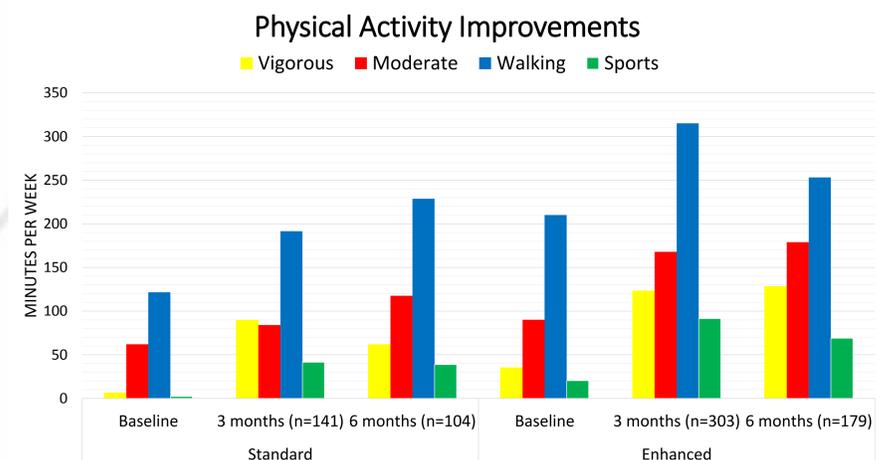
Participants

Participants were on average 53 years old (both groups), primarily female (standard, 65%; enhanced, 70%), and suffered a wide range of CVD risk factors (e.g. hypertension: standard 19%; enhanced 20%; obesity: standard 19%; enhanced 14%).

Primary outcomes

The majority of primary (and secondary) outcomes showed significant times effects, but non-significant group and interaction effects, revealing improvements regardless of group.

- MVPA (3 months, $\eta^2 = .17^{***}$; 6 months, $\eta^2 = .19^{***}$)
- Walking (3 months, $\eta^2 = .17^{***}$; 6 months, $\eta^2 = .07^{***}$)
- Sporting participation (3 months, $\eta^2 = .22^{***}$; 6 months, $\eta^2 = .17^{***}$),
- Sitting time (3 months, $\eta^2 = .08^{***}$; 6 months, $\eta^2 = .06^{***}$)



Note: The following represent effect sizes for the main effect of time; Effect sizes: $\eta^2 \geq .02$, small; $\eta^2 \geq .13$, moderate; $\eta^2 \geq .26$, large Significance level: * $p < .05$; ** $p < .01$; *** $p < .001$

Secondary outcomes

- Health (3 months, $\eta^2 = .06^{**}$; 6 months, $\eta^2 = .04^{***}$)
- Wellbeing (3 months, $\eta^2 = .05^{***}$; 6 months, $\eta^2 = .03^{**}$)
- Life satisfaction (3 months, $\eta^2 = .04^{***}$; 6 months, $\eta^2 = .04^{**}$)
- Action planning (3 months, $\eta^2 = .26^{***}$; 6 months, $\eta^2 = .17^{***}$)
- Self-monitoring (3 months, $\eta^2 = .23^{***}$; 6 months, $\eta^2 = .16^{***}$)
- Self-efficacy (3 months, $\eta^2 = .06^{***}$; 6 months, $\eta^2 = .05^{***}$)
- Attitudes (3 months, $\eta^2 = .06^{***}$; 6 months, $\eta^2 = .06^{***}$)

Intention-to-treat analysis

Parallel analysis was conducted on all programme users providing baseline data (baseline value carried forward) and mirrored the completer analysis, albeit with smaller effects.

Predicting MVPA performance and change

COM-B related indicators explained MVPA performance better at 3 ($R^2 = 18\%$) and 6 ($R^2 = 15\%$) months than at baseline ($R^2 = 8\%$). Self-monitoring (Capability) was the only significant predictor of MVPA at all three time points. Changes in MVPA were weakly predicted (3 months, $R^2 = 5\%$; 6 months, $R^2 = 7\%$). Self-monitoring was key in driving MVPA change at 3 but not 6 months.

Discussion

Active Herts improved activity levels, sitting, health, life satisfaction, Capability, and Motivation at 3 and 6 months. This provided preliminary evidence that such programmes, delivered in real world settings, can change the behaviour and wellbeing of residents living in areas of deprivation.

The addition of exercise buddies and tailored free classes did not provide large benefits above the standard delivery. The measures capturing Capability and Motivation predicted MVPA performance strongly but not MVPA change, and self-monitoring was the most important predictor of both

Future considerations

- The need to measure long-term outcomes of behaviour change
- Difficulties in measuring the constructs of the COM-B
- Difficulties in recruiting exercise buddies
- The balance between standardisation and tailoring
- Adopting a transdisciplinary approach from the start (e.g. grant writing onwards)

Conclusion

The Active Herts programme showed preliminary evidence that it could be an effective service in changing the behaviour and wellbeing of people who need it most. Future research should test this approach in a randomised controlled trial to provide a more robust test of effectiveness.

Acknowledgements

The authors would like to thank Adan Freeman and Joe Capon, the project officers, Fiona Deans, the project manager from Herts Sports Partnership, the public health lead, Piers Simey, from Hertfordshire County Council, and the Get Active Specialists (Lee Bruce, Alison Goodchild, Hannah Marsh and Andrew Rix).

