

Feasibility of a theory-based intervention to reduce sedentary behaviour among contact centre staff: the SUH stepped-wedge cluster RCT

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Scientific summary

The SUH stepped-wedge cluster RCT

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Scientific summary

Background

Sedentary behaviour is linked to an increased risk of type 2 diabetes, cardiovascular disease, musculoskeletal issues and poor mental well-being. Contact centres are associated with higher levels of sedentary behaviour than other office-based workplaces. Contact centre staff spend 95% of their shift sitting, and one in four contact centre staff regularly experience musculoskeletal problems and lose 22.4% of their sick days to such problems.

The causes of workplace sedentary behaviour are multifactorial and, therefore, any intervention to reduce sedentary behaviour necessitates a multicomponent approach. There is evidence that interventions using the socioecological framework that consider all levels of factors are more effective than those that simply target one level (e.g. individual or environmental factors) (Chu AH, Ng SH, Tan CS, Win AM, Koh D, Müller-Riemenschneider F. A systematic review and meta-analysis of workplace intervention strategies to reduce sedentary time in white-collar workers. *Obes Rev* 2016;**17**:467–81. <https://doi.org/10.1111/obr.12388>). In addition, workplaces are complex systems, and it is not always easy to implement interventions that will be sustainable and acceptable. Any intervention needs to be adaptive to the system(s) in which it will be implemented and understand the contextual and cultural constraints, as well as the opportunities within said system(s). Stand Up for Health (SUH) is a multicomponent intervention that aims to reduce sedentary behaviour in contact centres.

Stand Up for Health is a multicomponent intervention, whereby theories of action (specific activities) are individualised to each centre following a central theory of change based on the socioecological model. Implementation of the intervention involved hosting two workshops with each centre, allowing staff to test out various pieces of equipment and activities, and discussions with staff around what activities would work best for the centre at each level of the socioecological model. It also included the development of a SUH Committee for procuring and generating activity ideas from staff and aiding implementation of SUH. After the first workshop, researchers worked with the committee to develop an action plan for the centre and were available for several months to assist with activity preparation and intervention implementation.

Objectives

- To test the acceptability and feasibility of implementing the SUH intervention.
- To assess the feasibility of using a stepped-wedge cluster-randomised controlled trial study design.
- To scope the feasibility of a future health economic evaluation.
- To consider previous aims within the context of the COVID-19 pandemic.

Methods

A cluster-randomised stepped-wedge feasibility design was used for this study.

Eleven contact centres were recruited from cities across the UK to take part in the intervention. Between March and May 2019, centres from London, Durham, Tyneside (Newcastle-upon-Tyne, Gateshead, South Shields and Jarrow), Sunderland and Edinburgh were recruited and randomised. Staff in 7 of the 11 centres were recruited for qualitative and quantitative data collection between July 2019 and November 2020.

The primary outcome for the overall study was objectively measured sedentary time in the workplace. Secondary outcomes included subjectively measured sedentary time in the workplace and overall sedentary behaviour, objectively measured physical activity, productivity, mental well-being, musculoskeletal health and intervention activity participation. The activPAL™ (PAL Technologies Ltd, Glasgow, UK) devices were used for device-measured measurements of sedentary behaviour and physical activity. Existing and reliable questionnaires were used for subjective measurements of sedentary behaviour, physical activity, mental well-being and musculoskeletal health. Questionnaires developed by the researchers were used to measure productivity and intervention activity participation.

The process evaluation addresses the first two aims of the study in assessing the feasibility of intervention delivery and data collection methods, as well as procuring preliminary estimates of effectiveness.

The economic evaluation addresses the third aim of the study, attempting to answer the research question: 'Is it feasible to provide estimates of the cost-efficiency of Stand Up for Health from (a) an NHS and Personal Social Services perspective and (b) an employer's perspective?'

Results

Intervention implementation and estimates of effectiveness

The process evaluation showed that the intervention was acceptable, feasible and sustainable. Pre COVID-19, the development of an action plan for the contact centres and implementation of the plan was successful. Staff and stakeholders emphasised the importance of the SUH programme for contact centres to improve physical, mental, emotional and social well-being. It was felt that SUH was a particularly significant and unique programme because it brought attention to the lack of movement in the sedentary contact centre environment, and encouraged movement in this environment. Stakeholders reported that the SUH programme helped them look after their staff better. Staff highlighted several perceived benefits of the programme, such as reduced sedentary behaviour, increased physical activity and improvements to musculoskeletal health. Staff also felt that SUH helped them manage stress and cope with stressful calls. Encouraging teamwork and uplifting team spirit was another valued aspect of SUH. Aspects of ownership and autonomy and the range of activities meant greater engagement from staff and encouraged participation from staff members.

However, the results show no evidence of an improvement in sedentary behaviour or other outcomes in either the pre-, or post-lockdown analyses. There was insufficient evidence of any difference in the proportion meeting physical activity guidelines between the intervention and the control groups [odds ratio 0.82, 95% confidence interval (CI) 0.32 to 2.08], and of any difference in sedentary time in the workplace between groups (mean difference 60.30 minutes, 95% CI -3.62 to 124.27 minutes). However, sedentary time was significantly greater in centres that received the intervention than in those that did not (mean difference 84.06 minutes, 95% CI 4.07 to 164.1 minutes). The other objective outcomes also tended to favour the control group. For the subjective outcomes, the results of the Occupational Sitting and Physical Activity Questionnaire were consistent with the primary outcome and favoured the control group, although differences were not statistically significant. Objectively measured total sedentary time exhibits potentially low levels of between-centre variation. These analyses were subject to several limitations, namely a small number of centres, being unable to exclude the possibility of non-intervention related changes, a significant number of dropouts (largely due to the COVID-19 pandemic) and the inability to collect device-measured sedentary behaviour data after February 2020.

Study design and data collection methods

There were difficulties with the stepped-wedge design, specifically (1) maintaining contact centre interest (those that were randomised to receive the intervention 12 months later in the post-lockdown group

were more likely to drop out) and (2) ensuring that data collection took place on schedule. There were also issues with collecting device-based data from all participants in all centres using accelerometers (e.g. activPAL device).

Scoping for an economic evaluation

We were able to identify feasible methods for estimating cost-efficiency from an NHS and a Personal Social Services perspective, and more limited methods from an employer's perspective. Detailed activity-based costing of direct intervention costs was achieved and, therefore, deemed feasible. Restricted staff time presented a persistent challenge for intervention implementation and participation, as well as data collection. Methods identified could, in principle, be applied to a range of trial structures but are dependent on external literature. To ensure value for money to research funders, these may be best deferred until evidence of effectiveness is demonstrated.

Limitation of study design

The stepped-wedge design was chosen as the most pragmatic design to enable data collection and intervention delivery by a small team. However, there were significant issues with attrition of contact centres when they had to wait more than 1 year to receive the intervention.

Conclusions

Stand Up for Health is an adaptive, flexible intervention that allows workplaces to develop a range of activities to suit their culture and context. It can also be adapted for other outcomes, such as physical activity and mental health. The intervention was feasible to deliver in all contact centres and sustainable in some. However the stepped-wedge study design is not optimal for maintaining contact centre interest. Instead, we suggest that a parallel-group cluster randomised trial, or another experimental design in which sites are recruited in pairs (or groups) over time, would be more practicable.

Implications for policy and practice

There is anecdotal evidence that, as the patterns of home/office working settle and many countries come out of the more acute stages of lockdown and the pandemic, workplaces are saying that the health and well-being of their staff has never been so important and that there will be a refocus on the health and well-being of the workforce; however, we have little formal evidence about how to support staff working in this context, as we have never experienced it before across such large proportions of the economy. Indeed, the impact of COVID-19 and the lockdown could have major implications for the health of the workforce, and all policies and practices will need to readjust to hybrid working. In addition, how we work with employers to develop and deliver interventions for people working mainly from home that go beyond the individual is a challenge (i.e. how do we change the 'working environment' when that is someone's home?). Although SUH needs further adaptation for the new ways of working and new systems that will develop, it has the potential to provide a significant resource for contact centres and other workplaces with similar organisational approaches. It has the ability to become embedded in the culture and contexts of the contact centres (and indeed this was demonstrated in the study) in a way that many other interventions are not designed to be.

Workplace sitting is, by definition, directly caused by the working environment, whereas other behaviours, such as smoking and alcohol use, are not. Using an intervention, such as SUH, to show an organisational commitment to health and well-being can lead to further activities that link sedentary behaviour with another health behaviour or are specific to another health behaviour.

Recommendations for research

- Further develop hybrid (office and/or home working) activities and implementation approaches for SUH that can also address other health issues, such as stress and physical inactivity.
- Assess effectiveness (and cost-effectiveness) of SUH in a larger trial, after refining the intervention based on amendments to the theory of change and recommendations for programme adaptation from the current study.
- Explore organisational and system-based factors that impede or assist implementation and sustainability of workplace interventions in further detail.

Trial registration

This trial was registered as ISRCTN11580369.

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