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Using Organisational Cultural Theory to understand workplace interventions to reduce sedentary time

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Abstract

Sedentary behaviour has been shown to have a negative impact on health. As such, prolonged sitting in the workplace is being increasingly seen as a public health problem. Multi-component interventions to reduce sedentary time at work are being used as a way of addressing the different environmental, personal and organisational influences on sedentary behaviour. The role of the organisational context on behaviour has rarely been explored in depth or theorised in the sedentary workplace behaviour literature yet a rich body of theory and evidence exists outside the field. The current article applies an organisational cultural framework for exploring how organisational factors and dynamics impact on sedentary behaviour in the workplace. Empirical data are taken from a qualitative study of office workers' responses to a 'sit less' initiative. Thirteen in-depth interviews and documentary analysis were conducted to help elucidate the ways in which organisational assumptions, strategy, structures, activities, operations, actions and norms combine to constrain reduced sitting time at work. The article offers a theoretical approach to understanding how organisational culture can influence interventions aimed at encouraging people to sit less in the workplace. It also offers an opportunity to consider how intervention design can better account for the 'whole systems' of an organisation and how 'sit less' initiatives can be positioned within them.

Keywords: sedentary time, workplace intervention, organisational cultural theory, sit less

Introduction and background

Time spent sitting is a growing public health concern. Sitting time is associated with adverse health conditions such as type 2 diabetes (Grøntved and Hu 2011; Hu et al. 2003), cardiovascular disease (Kim et al. 2013; Dunstan, Thorp, and Healy 2011), cancer (Gierach et al. 2009) and obesity (Hu et al. 2003). Sedentary time, of which sitting is a large part, has been shown to have a negative effect on health independent of physical activity (Proper et al. 2011; Martin et al. 2015).

Occupational sedentariness has emerged as a contemporary concern as employment roles in the Global North have become increasingly desk- or sitting-based. For example, Dutch and Australian studies have revealed that workers can spend up to half of their working day sitting (Jans, Proper, and Hildebrandt 2007; Brown, Miller, and Miller 2003). Work-based health promotion or 'wellness' programmes are key actors in the development of interventions to increase physical activity (PA) among the workforce. Increasingly, these programmes are seeking to not only increase PA through, for example, promoting active travel but are independently focussing on decreasing sitting time. Establishing the effectiveness of interventions to reduce sitting time in the workplace is limited by the number and quality of initiatives and their evaluation and testing (Chau et al. 2010). Nevertheless, health education and promotion programmes (Radas et al. 2013), prompting computer software (Evans et al. 2012), activity counselling (Malik, Blake, and Suggs 2014), the use of assistive technologies (such as accelerometers), standing desks and treadmill desks (Munir et al. 2015; Chau et al. 2014; Pronk et al. 2012; Hall et al. 2015) have all been used to assist individuals to reduce workplace sitting time. While the focus of many workplace interventions has been on promoting physical activity at the individual level (Lin et al. 2013), multi-component interventions that also focus on sitting less and that account for individual,

organisational and social factors are becoming more commonplace (Hall et al. 2015; Mackenzie, Goyder, and Eves 2015).

Work environment factors have been highlighted as critical to the success of physical activity interventions in general (Lin et al. 2013). Physical activity strategies in the workplace are recommended to adopt a long-term 'ecological' model to account for individual, organisational and environmental factors (Pronk and Kottke 2009). 'Sit less' initiatives also require attentiveness to ecological factors but few studies have examined such initiatives independent of broader PA interventions (Martin et al. 2015).

Both sedentary behaviour and PA in workplace culture are under-studied. Physical activity research in the workplace, however, has highlighted how 'workplace culture' can promote and undermine attempts to change working practices. A 'human-centred' culture based on the principles of respect, diversity, worker engagement and trust can optimize opportunities to improve health and productivity (Pronk and Kottke 2009). Ensuring a supportive work environment that endorses PA at work (and outside it) has been found to promote the acceptability of interventions (Quintiliani et al. 2007). Organisational support for reducing sedentary time was noted as essential in a short-term multicomponent intervention (Healy et al. 2013) . This has also been noted in relation to the trialling of sit-stand desks in open plan offices (Chau et al. 2014). Cultural barriers have also been noted in interventions using sit-stand desks. These include feeling self-conscious during standing, worrying about disturbing others and invading colleagues' privacy (Chau et al. 2014). There is a notable paucity of theory and evidence, however, on how organisational culture impacts on workers' adoption or rejection of sit-less initiatives. In a review of workplace environment PA interventions by Lin et al. (2013) only one study used a theoretical framework that included ecological environmental constructs to guide their research. This non-intervention study

used individual, social, organisation, policy, community and physical environment variables and determined that perceived workplace environment was only slightly associated with PA incorporated into the workday (Prodaniuk et al. 2004). The purpose of this paper is to examine the organisational cultural factors that impede and promote reduced sitting time in the workplace. This is achieved by examining the responses to a 'sit less' health promotion intervention at a large public sector institution in Scotland, UK. First, the question of what is 'organisational culture' is addressed through exploration of organisational culture and behaviour theory. Qualitative data from semi-structured interviews and organisational strategic documents are then used to explore how organisational culture impacts on employees' opportunities and orientations towards sitting time at work. In analysis and discussion, a configurational organisational cultural framework (Dauber, Fink, and Yolles 2012) is used to explain cultural dynamics and how interventions might better interact with the existing culture to improve intervention effectiveness.

What is organisational culture?

Although there is no agreed definition of organisational culture, a considerable body of literature is devoted to establishing culture as what an organisation 'is' and how it 'does' things (Davies, Nutley, and Mannion 2000). In other words culture is both 'being' and 'doing' and represents an interplay between a series of *dimensions* such as organisational values, norms, structures, operations, strategy and policy and the *dynamics* between them and the external environment. Culture is therefore not static – and importantly for interventions that seek to alter behaviour – amenable to change. Dauber, Fink and Yolles (2012) draw together a broad range of organisational culture theoretical frameworks to devise a configuration model of organisational culture. Using their model, Table 1 identifies the domains of organisational culture and how these can

be understood. The model owes much to the seminal work of Schein (2010) who identified the domains of organisations' artifacts (visible elements of culture), espoused values (stated values and rules) and basic underlying assumptions (less tangible, taken-for granted elements of culture) as the foundation of organisational culture.

Table 1 about here.

Embedded within each of these domains is an explicit or implicit orientation towards sedentariness and/or physical (in)activity. For example, an organisation's strategy might explicitly cite employee wellbeing as a goal. This may be manifest in policy (the structural system) through specific provisions such as sit-stand desks or active travel to work schemes. Equally it may not. It may be that consistency between domains is lacking and the dynamics between domains and the external environment may mitigate against sitting less. The powerful external influence of motorised transport, for example, is often cited as part of a complex network of external factors that make sedentary choices easier to make (Jacobsen, Racioppi, and Rutter 2009).

The simplified configurational model in Figure 1, adapted from Dauber et al (2012), captures the links between domains and points to some of the processes through which organisational culture might change.

Figure 1 here

With this configurational approach in mind, the current study aims to examine i) the ways in which 'sitting less' or inactivity at work is in evidence in the domains of the organisational culture in the study workplace, ii) how these domains interact to generate, reinforce and reproduce sedentariness in the workplace, iii) identify how these dynamics might be interrupted through health promotion and education to disrupt the prevailing organisational culture.

Approach/methods

The data presented comes from an employer engagement project between a large Scottish public sector organisation and the University of Edinburgh which was conducted between December 2012 and June 2013. It had several components:

1. Awareness-raising sessions with staff. This highlighted the issue of sitting time at work. All staff were invited to presentations and discussions. Around 50 employees took part in this phase.
2. A 'sit less and walk more' 4 week intervention. Thirty five volunteers took part in this phase. They were provided with a pedometer to record steps taken at work. Baseline measures were taken in week one. This was followed by a one-to-one counselling intervention which aimed to help participants identify where, how and when sitting time could be reduced and step counts increased. Steps were then recorded for a further three week period.
3. Posters were placed at key decision-making points around the workplace (e.g. stairs, lifts) to encourage physical activity.

Although these components largely focussed on individual-level behaviour change there was an attempt to encourage the use of existing environmental 'enablers' (e.g. standing tables) and environmental prompts in the awareness-raising and counselling phases of the project. There was a view by senior staff that the project was an opportunity to assess sedentary practice at work that could influence future workplace policy.

The findings presented here draw on 13 qualitative face-to-face in-depth interviews with volunteers from the project. These interviews sought to examine:

1) What are the key 'workplace cultural' factors that promote and/or hinder opportunities to sit less in the workplace?
2) How are these barriers/opportunities manifest?
3) How might they be challenged *within a structurally situated organisational cultural framework*?

The interviews were conducted in a semi-structured format and lasted between 30-40 minutes. Of the group of 13, seven were men and six were women; ethnicity data were not collected. While there was variation in the job roles (for example, senior management, project managers, skilled administrative staff, office managers and researchers) all participants were engaged in predominantly desk-based work. All had

taken part in the pedometer phase of the project and reported varying degrees of adherence.

Finally, the findings draw on analyses of four key workplace policy documents to examine the extent to which cultural elements that link to organisation strategy and structure support or challenge sedentariness. The documents were: 1. The employee's workplace handbook, 2. An employee mental health and wellbeing statement, 3. The health and safety components of the organisation's annual reports (2010-2013), 4. The organisation's strategic plan and performance framework.

To aid analysis, interviews were transcribed verbatim and arranged thematically with the help of the qualitative data software package Nvivo10. Researcher notes and initial thematic constructs were devised immediately after interview and from documentary analysis as a first phase. These were further developed by reading transcripts and documents and constructing a thematic 'tree' in Nvivo. Coded 'branches' of data were connected to their thematic parent and interpreted using a combination of deductive and inductive reasoning using the organisational theoretical framework outlined above and focussing especially on data related to organisational culture. Data analysis was conducted by the first author and agreed through discussion and consensus with the second. All respondents have a pseudonym.

The project was granted ethical approval by Moray House School of Education ethics committee, University of Edinburgh (no. 168).

Findings

The evidence presented relates to organisational cultural issues and their dynamics. Each cultural domain is addressed with examples of interrelationships highlighted.

Underlying assumptions (value and belief system)

The underscoring assumptions about the nature and culture of work highlighted a belief system that emphasised the inevitability of time pressure, the intensiveness of desk-/computer-based work and the necessity of the work ethic to 'get things done'. In Sarah's words: 'if you've got a particular task to get done then you've just got to get your head down'. The respondents highlighted how taking breaks from the desk was 'wasting time' (Sandy) (i.e. represented organisational waste) and how 'it would be bad for business if I got up and walked around' (Sarah). Time pressure and the demands of work were considered incompatible with sitting less at work: 'it's the one that I really struggle with, how do I stay active when the job is demanding that I sit, physically unmoving, at my desk?' (Christina). It was noted, however, that a sit less project 'flips that on its head' (Sandy). In other words, the introduction of the project meant the principle of reducing sitting time had been legitimised at an organisational level. It was not apparent in the data that such legitimisation challenged the underscoring assumption that work was time pressured, intensive and desk-based. Moreover the respondents spoke of how sitting less could be integrated into the existing value and belief system by, for example, altering desks to enable standing, appointing 'champions' for sitting less and increasing general awareness: 'other than increasing general awareness of the long term benefits, it's difficult to see what else could actually be done' (Bob). This highlights the deeply embedded nature of underlying organisational cultural assumptions about what constitutes work and how it needs to be done.

Strategy

Formal organisational strategy was not frequently communicated by the interviewees. A few made reference to how things *should* be done; the example of challenging siloing and encouraging team working is a reference to this. The absence of what were

considered to be the espoused values of the organisation and how that related to the culture of sitting at work could be viewed as notable in the light of the low visibility of physical activity/sedentary time in the formal strategic documents of the organisation. At the time of writing, the organisation's strategy and associated documents did not make reference to sitting time and reported only on health and safety in terms of statutory duties. Procedures were in place for assessing desk-posture in the context of avoiding repetitive strain and musculoskeletal issues.

Artifacts (visible behaviour)

The structural system and the activities/behaviours of the organisation interconnected in several ways that influenced sedentariness. In terms of policy, rules and regulations, the respondents made relatively little reference to *formal* practices, again highlighting a potential structural/operational vacuum in this area. Michael reflected on the lack of policy in this area in positive terms:

> I don't think there's any kind of you must be seen to be sat at your desk for X number of hours to prove your worth … [here] managers, they treat you like an adult, it's not like where are you, you've been gone for 10 minutes, they're not like that, so we're quite lucky in that respect.

Of the comments that were made about policies, home working and flexi-time were the most frequently mentioned, particularly in terms of how they *encouraged* greater sedentary time. Respondents reported reduced step counts when working at home in part owing to a lack of purpose when finding reasons to sit less and also because it was felt that working at home was a sanctioned privilege: 'maybe it's the guilt thing, I sit intensively at my, you know, I've got an office at home, and just sit there … and there's no canteen to go to, there's not even the usual excuses' (Peter). Environmental

structures were also mentioned as informing the cultural dynamic within the organisation. Sarah, for example, commented:

> Within an office environment you have to sit at your desk … your phone is at your desk, your computer is at your desk … I know I can't just walk away from my desk whenever I feel like it (Sarah).

Although many of the respondents did not make reference to formal policy, all of them referred to working norms in a range of areas including line management, emailing, meetings, leadership and managerial practice. Table 2 provides some illustrative examples of cultural norms that informed behaviour.

Table 2 here.

Self-reported patterns of behaviour (i.e. long periods of sitting) were dynamically related to the underlying assumptions and norms reported above. Many respondents graphically represented this finding in their reflections on how activities that strayed from the norm could not only be considered unorthodox but potentially reputationally damaging. This was particularly the case with respect to normative behaviour in meetings. Many indicated how standing would transgress professional boundaries: "If you're at any meeting, the norm is to sit there and if you do anything different from that, you immediately stand out and you don't necessarily stand out in a good light; you're a bit of a rebel" (Bob). Harry expressed similar sentiments:

> I think it would come as a bit of a surprise to people if you suggested that, let's have a walking meeting rather than sitting … I'm not sure, I'm not sure how that would be received by some. I think some people would think that was maybe a bit ridiculous!

Similarly, Sandy commented: 'if I stand up people will just think I'm weird you know!' The operational activity of sitting in meetings was symbolic of professional 'standards' and was dynamically associated with broader organisational and socio-cultural processes of labelling and defining 'acceptable' behaviour. Joyce reflected on this in an

office context: ‘it can feel really strange to say, I’m just going to go jog up and down the stairs for a minute, and that’s maybe not acceptable in an office’.

Other areas of behaviour that reflected organisational culture and structures related to the practice of ‘siloing’ (the closing-off of operational areas from each other). On this, respondents referred to how working in silos limited face-to-face interaction and the chance to move around work space: ‘it’s like silos, different departments are [separate] and it’s email that connects them as opposed to physically walking into another office …It’s quite rare that you’ll get people from other offices coming [here] or [us] going into other offices’ (Michael). The counter-measure to operational siloing was team working; something that offered opportunities to connect in person:

> I think a culture which encourages sort of team working, collaboration, you’re just much more likely to get out … collaboration often sort of entails face-to-face, then if you’re collaborating across teams, somebody’s got to go up to someone else (Peter).

Team working and working across teams was seen as an operational aspiration, whereby reduced sitting time was just one of a number of organisational benefits.

External factors

Respondents often reported their experience of the project in the context of their everyday lives and reflected on how issues such as family life, transport arrangements and the nature of the modern working environment impacted on their sedentary time. The acceptance of the inevitability of sedentariness at work was communicated by Joyce: ‘That’s what the modern work environment [is]. It’s for your brain and your fingers and everything else can just kind of go away’. The fact that the organisation was public sector also informed thinking on the organisational limits of reducing sedentary time. The following extract highlights this tension in the public sector ‘legitimisation environment’ (Freeman 2010):

> The problem with that is we're actually paid to do a job and you know … what's the payback for the organisation? Because you know I'm spending public money here, so I have to be very, very careful that I'm respecting the fact that you know the public is entitled to expect something for it and you know the payback unfortunately for something like this is a bit difficult (Peter)

Discussion: the dynamics between domains

Table 3 provides a summary of how sitting time at work was manifested in the domains of organisational culture.

Table 3 here

It is evident that these domains do not operate independently but are *mutually reinforcing* in a configuration of values, strategy, structures, operations and influences from the external environment. Time spent sitting could be seen as the outcome of interplay between all the domains that act to *construct* and *re-construct* sedentariness as both a practice and an ethos. Figure 2 represents this dynamicism.

Figure 2 here

Of particular note in this study was the absence of formal policy and strategy that focussed on sedentary behaviour in both practice and ethos: sitting time had not been problematised. In its absence – and as can be seen in the model – there was an 'operationalisation vacuum' in the dynamics of the organisation whereby values were not explicit and the informal norms of sitting 'to get the job done' found dominance. Hatch suggests observable behaviour can emerge from underlying assumptions through 'manifestation' into values and through 'interpretation' of symbols (Hatch 1993). It is feasible that the behaviour of prolonged sitting exists as a realisation of the informal process of value-building in the absence of a formal strategy. Observable behaviour in

the form of sitting is then interpreted and becomes symbolic of ‘being on the job’, thus reinforcing dominant behavioural patterns.

In order to effect change it is apparent that focussing on one domain is insufficient to reduce sedentary time at work. Scholars in the field have argued for workplace policy changes and norm-changing interventions (Manini et al. 2014). This study highlights the interdependency of these initiatives in a way that suggest a ‘whole-systems’ approach would be required (Pratt, Gordon and Plamping 2005). This approach, borrowed from organisational development approaches, highlights the importance of workers coming together around a ‘shared purpose’ to adapt and evolve to complex, embedded organisational challenges (*ibid.*). Such an approach may also positively impact on the important psychosocial construct of perceived job control (ability to exercise control over sitting less at work) which has been shown to be a potentially important moderator in behaviour change (De Cocker et al. 2014). Multi-component, co-produced interventions (Mackenzie, Goyder, and Eves 2015) that account for the deeply embedded cultural practices of organisations could therefore usefully challenge sedentariness at different but interconnected organisational levels.

Conclusion

This study has revealed how ‘mid-range’ theory that identifies a broad-base of contextual factors can complement the rich literature on individual determinants of sedentary behaviour that has emerged over the past decade. The paper reveals how behavioural change is dependent on a range of structural, organisational and cultural factors that dynamically inter-relate. This provides both contrast and complement to the individualist/behaviourist approaches more commonly adopted.

The model of organisational cultural dynamicism provides a useful analytical and

operational starting point for devising future ‘sit less’ interventions in workplaces. These would account for ‘domains’ of culture such as underlying assumptions, espoused values and behaviours *and* interactions between the domains. It seems that a socio-ecological model similar to those adopted in recent studies, particularly in the PA sphere (Pronk and Kottke 2009), can be informed by the organisational cultural framework outlined above. It is also amenable to trailing and testing in different organisational settings.

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Table 1 Domains of organisational culture that impact on sedentariness and physical (in)activity in the workplace

Domains	**Explanation of domain**
Value and belief system	The underlying assumptions of organisational behaviour
Strategy	The overall orientation for reaching pre-set goals and objectives (Whittington 2001) i.e. 'what *should* be done'
Structural system	The manifestation of values and beliefs as norms, policy, rules and regulations
Organisational activities/operations/actions	Patterns of behaviour. Observable manifestations of values, strategies and structures
External environment	Influences external to the organisation that effects organisational culture and the internal environment of the organisation at large

Adapted from Dauber et al 2012

Table 2 Artifacts: the interaction between structure and activity

Component of structural system and operations	**Example of underlying cultural norms that encourages sedentary time**
Line management	Systems of line management that 'monitor' work/output: 'I just assume that my line manager would not approve of me not being on task for the time that I'm paid' (Sandy)
Communication (Emailing)	Norm of non-interruption acts to discourage face-to-face interaction: 'The benefit of e-mail of course is that you're not interrupting the

	flow of their work' (Joyce)
Leadership	Norm of 'leading by example' requires application to reduce sedentary time: 'A programme like this, the lead so often comes from a leader, in this case it's the chief executive … who has been very supportive, and that's been great' (Bob)
Meetings	Meetings considered to *require* sitting to denote formality and professionalism: 'I think there is a culture where if you were in a meeting with [people], to have everyone suddenly stand up, people would just think, what on earth is going on!' (Louise)
General management practice	Norm of sedentary time unchallenged up the work hierarchy: 'It might be more helpful if they [managers] were more explicit about saying things about you know get up, move around yourself' (Sarah)

Table 3 Domain examples from the study relating to reducing sitting time at work

Domain	**Examples of how the domain is manifested in the context of the 'sit less' project**
Value and belief system	Work ethic belief system. Basic underlying assumption that most productive work is desk-based and meeting-oriented. Understanding of work as intensive and demanding.
Strategy	Formal strategy rarely cited by employees. What *should* be done does not include identification of ethos of sitting in the workplace
Structural system	Manifestation of the work ethic evident in norm of desk presenteeism, expectation of sedentariness to complete tasks,

	adherence to norms of ‘the demands of the job’.
Organisational activities/operations/ actions (self-reported)	Patterns of behaviour largely sedentary – examples of long stretches of sitting time at desks and at meetings Operations/task achievement necessitates much computer work. All workstations are sitting desks. Meetings largely sitting (walking or standing meetings exceptionally rare). Sitting meetings frequent part of everyday business. Lunchtime breaks recognised as a legitimate opportunity to get away from desks/meetings. Norm of sitting contrasted sharply with ‘strangeness’ of standing or walking.
External environment	Public sector ethos heightens need to justify ‘time off the job’.

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