Psychosocial work environment and leisure-time physical activity: the Stormont Study

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Background

Research findings on the relationship between the psychosocial work environment and leisure-time physical activity (LTPA) are equivocal. This might partly be due to studies having focused on a restricted set of psychosocial dimensions, thereby failing to capture all relevant domains.

Aims

To examine cross-sectional associations between seven psychosocial work environment domains and LTPA in a large sample of UK civil servants and to profile LTPA and consider this in relation to UK government recommendations on physical activity.

Methods

In 2012 Northern Ireland Civil Service employees completed a questionnaire including measures of psychosocial working conditions (Management Standards Indicator Tool) and LTPA. We applied bivariate correlations and linear regression analyses to examine relations between psychosocial working conditions and LTPA.

Results

Of 26000 civil servants contacted, 5235 (20%) completed the questionnaire. 24% of men and 17% of women reported having undertaken 30 min or more of physical activity on five or more days in the past week. In men, job control (−0.08) and peer support (−0.05) were weakly but significantly negatively correlated with LTPA, indicating that higher levels of exposure to these psychosocial hazards was associated with lower levels of LTPA. Job role (−0.05) was weakly but significantly negatively correlated with LTPA in women. These psychosocial work characteristics accounted for 1% or less of the variance in LTPA.

Conclusions

Longitudinal research to examine cause–effect relations between psychosocial work characteristics and LTPA might identify opportunities for psychosocial job redesign to increase employees’ physical activity during leisure time.

Key words

Civil servants; leisure-time physical activity; Management Standards Indicator Tool; psychosocial work environment; work-related stress.

Introduction

There is value in identifying modifiable factors that might influence physical activity, given its importance for health [1] and work ability [2]. The psychosocial work environment might be such a factor, possibly due to reduced availability of time associated with high job demands, fatigue and associated need for recovery [3]. Certain psychosocial working conditions, particularly passive, unchallenging jobs with low demands and control, might lead to reduced self-efficacy and more passive lifestyles [4,5]. Employees with low job control may have less time to plan for leisure-time physical activity (LTPA) or fewer opportunities to adjust their work time in order to participate in physical activity [6].

Some studies have found an association between poor psychosocial work environment and a slightly increased risk of physical inactivity, while others found null results [7–14]. This inconsistency might be partly due to studies having focused on a restricted set of
psychosocial dimensions (primarily job demands, control, effort and reward) and failing to capture all relevant domains. Moreover, the findings of these exclusively Scandinavian studies might not generalize well to the UK, cultural and climatic differences possibly influencing relevant variables. The only UK study we found that explored these variables found an association between low job demands and control and a slight increase in risk of low LTPA in male, but not female, civil servants [15].

Given the paucity of UK-specific data this study offers an examination of associations between a diverse set of psychosocial working conditions and LTPA in a large sample of UK civil servants. Associations between the psychosocial work environment and LTPA may inform the targeting of workplace interventions to promote LTPA. This study also profiles LTPA in relation to the UK government recommendation that adults aged 19–64 should ‘aim to be active daily. Over a week activity should add up to at least 150 minutes (2½ hours) of moderate intensity activity in bouts of ten minutes or more – one way to approach this is to do 30 minutes on at least five days a week’ [16]. This most recent recommendation, issued in 2011, is consistent with the previous 2004 recommendation for at least 30 min per day of at least moderate intensity physical activity on five or more days of the week [17].

**Methods**

We used data gathered in 2012 as part of the Stormont Study, which is tracking a large cohort of employees through their career with the Northern Ireland Civil Service (NICS). This includes staff of the 12 devolved Northern Ireland ministerial departments and the Public Prosecution Service for Northern Ireland. We emailed an invitation to participate in the study and a link to an online survey to all NICS employees with an occupational email address (~26 000 of 27 507). The research was commissioned by the NICS Workplace Health Committee and ethical approval granted by the Ethics Committee of the University of Ulster.

We used the 35-item version of the UK Health and Safety Executive Management Standards Indicator Tool (MSIT) [18] to measure the psychosocial work environment. Each item has a 5-point response scale: either 1 (never), 2 (seldom), 3 (sometimes), 4 (often) and 5 (always), or 1 (strongly disagree), 2 (disagree), 3 (neutral), 4 (agree) and 5 (strongly agree). Example items from each of the seven scales include: ‘I have unachievable deadlines’ (demands), ‘I have a say in my own work speed’ (control), ‘I am given supportive feedback on the work I do’ (managerial support), ‘If work gets difficult my colleagues will help me’ (peer support), ‘I am subject to bullying at work’ (relationships), ‘I am clear what my duties and responsibilities are’ (role) and ‘Staff are always consulted about change at work’ (change). High scores indicate high (and potentially harmful) exposures.

We measured LTPA by asking ‘In the past week, on how many days have you done a total of 30 minutes or more physical activity which was enough to raise your breathing rate? This may include sport, exercise, and brisk walking or cycling for recreation or to get to and from places, but should not include housework or physical activity that may be part of your job.’ We used a 7-point response scale from 0 to 7 days. This self-report measure has been shown to be a valid and reliable measure of physical activity [19]. We dichotomized responses into sufficient (five or more days per week) and insufficient (four or fewer days per week) physical activity.

We conducted bivariate correlations to explore relations between the study variables. We applied linear regression analyses to explore the association between the psychosocial work environment and LTPA. We conducted separate analyses for males and females because earlier research indicated that the relationship between psychosocial working conditions and LTPA might vary between the sexes [3,15]. We did not control for sociodemographic and occupational variables in the analysis because they were not significantly correlated with the dependent variable (LTPA).

**Results**

Of around 26 000 civil servants contacted 5235 (20%), comprising 2305 men and 2930 women, completed the questionnaire. Approximately 5000 additional employees logged off the online survey platform before completing the questionnaire. Table 1 compares participants’ demographic and occupational characteristics to the total NICS workforce. There were no significant differences in gender or age, but the deputy principal grade was over-represented in the sample (14 versus 9%) and the administrative officer or assistant grade was under-represented (25 versus 36%). We excluded non-permanent, non-full time and manual workers and analysed a final sample of 1727 male and 2068 female permanent, full-time, office-based workers.

24% (408) of men and 17% (356) of women reported having undertaken 30 or more minutes of physical activity on five or more days in the past week. Table 2 shows correlations between variables. In men, job control (−0.08) and peer support (−0.05) were weakly but significantly negatively correlated with LTPA, indicating that higher levels of exposure
to these psychosocial hazards was associated with lower levels of LTPA. When we regressed LTPA onto control and peer support, significant models emerged (\(F(1, 1727) = 12.20, P < 0.01\) and \(F(1, 1727) = 5.08, P < 0.05\), respectively). In women, job role (−0.05) was weakly but significantly negatively correlated with LTPA. When we regressed LTPA onto role, a significant model emerged (\(F(1, 2068) = 4.77, P < 0.05\)). However, the models were weak and these psychosocial work characteristics accounted for 1% or less of the variance in LTPA.

**Discussion**

We found that 24% of men and 17% of women in our sample of civil servants in Northern Ireland reported having undertaken at least 30 min of physical activity on five or more days in the past week. In men, job control and peer support were weakly but significantly negatively correlated with LTPA indicating that higher exposures to these hazards (having lower job control or lower peer support) was associated with lower levels of LTPA. In women, job role was weakly but significantly negatively correlated with LTPA.

Given the large sample size and relatively small differences in the representation of the deputy principal and administrative officer or assistant grades, we considered our sample broadly representative of the NICS workforce. Although the response rate was low, the large sample size may have facilitated the detection of weak effects. Previous studies focused on demand, control, effort and reward, but we explored a broader range of psychosocial working conditions that might be associated with LTPA by using the MSIT. This study relates MSIT scores to health behaviours; previous studies involving the MSIT having focused on psychological health and job performance outcomes.

The study also has some limitations. The low response rate and the number of employees who failed to complete the online questionnaire suggest that the survey instrument may have been too time-consuming. Previous NICS surveys of similar length had higher response rates but survey fatigue may have developed in the workforce. We have therefore devised a shorter questionnaire for future surveys. Self-report data may be prone to recall bias and affect correlations between variables. The study’s cross-sectional design limits inferences about causation and mechanisms of association between the psychosocial work environment and LTPA. Although most existing literature suggests that psychosocial working conditions predict health behaviours rather than the other way round [20] some prospective research has suggested a bidirectional relationship, physically inactive employees being more likely to move into high strain or passive jobs [21]. Future studies could use time-lagged data to test causality.

Approval for the questionnaire used in our study was granted before the 2011 UK guidelines on physical

| Table 1. Comparison of respondents’ demographic and occupational characteristics against NICS population |
|-------------------------------------------------|-------------------------------------------------|
| Survey respondents (October 2012), n (%) | Total NICS staff (April 2012), n (%) |
| Gender | |
| Male | 2305 (44) | 13698 (50) |
| Female | 2930 (56) | 13809 (50) |
| Age | |
| <25 | 93 (2) | 655 (2) |
| 25–34 | 1018 (20) | 6517 (24) |
| 35–44 | 1356 (26) | 7198 (26) |
| 45–54 | 1981 (38) | 9506 (34) |
| ≥55 | 787 (14) | 3863 (14) |
| Work pattern | |
| Full time | 4329 (83) | 22654 (82) |
| Part-time, job share, term time | 906 (17) | 5085 (18) |
| Job grade (in descending order) | |
| Senior Civil Servant/Assistant Secretary (Grade 5 or above) | 40 (1) | 236 (1) |
| Senior Principal/Principal (Grades 6 and 7) | 383 (7) | 1391 (5) |
| Deputy Principal | 750 (14) | 2382 (9) |
| Staff Officer | 992 (19) | 3288 (12) |
| Executive Officer Levels 1 and 2 | 1627 (31) | 7828 (28) |
| Administrative Officer or Assistant | 1293 (25) | 10037 (36) |
| Industrial (manual worker) | 49 (1) | 1057 (4) |
| Other | 101 (2) | 1520 (5) |
A set of psychosocial work characteristics was accounted for 1% or less of the variance in LTPA, and lower levels of LTPA, consistent with previous UK research [15], and these psychosocial work characteristics accounted for 1% or less of the variance in LTPA. Further research could explore how these findings might generalize in public and private sector workplaces and the mechanisms linking aspects of the psychosocial work environment and LTPA before conclusions can be drawn on whether job redesign can effectively promote physical activity.

**Key points**

- A minority of civil servants in our sample reported having undertaken at least 30 min of physical activity on five or more days in the past week.
- A set of psychosocial work characteristics was weakly but significantly associated with leisure-time physical activity.
- Longitudinal research to examine cause–effect relations between psychosocial work characteristics and leisure-time physical activity might inform the potential for psychosocial job redesign to increase employees’ physical activity during leisure time.

**Conflicts of interest**

None declared.

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