



The role of working hours, work environment and physical leisure activity on the need for recovery following a day's work among UK white-water raft guides: A within-subjects multilevel approach



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ABSTRACT

Background: White-water raft guides are a growing workforce of the outdoor sector but little is known about how the working environment, workload and physical leisure activity impacts on the need for occupational recovery (the desire to replenish internal resources and recuperate in the time immediately following work) of those working in this physically demanding occupation.

Methods: Longitudinal data were collected across an eight month working season at three month intervals. Multilevel analyses tested the within-subject associations between work environment, hours worked and physical leisure activity had on the need for recovery.

Results: Working longer across the working season and participating in more physical leisure activity were directly associated with a lower need for occupational recovery. Furthermore, working on natural rivers significantly reduced the need for recovery experienced compared to work on man-made courses. This was regardless of the number of hours of worked in these environments.

Discussion: Physical leisure activity may provide a distraction from work, allowing employees to replenish their physical and psychological energy, thus protecting themselves against work-related fatigue. The findings also expand upon the previous literature identifying that working in a natural environment reduces the risk of experiencing work-related fatigue.

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1. Introduction

White-water rafting is a social, commercial and competitive activity that requires great physical skill in using a paddle or oar power to negotiate rivers (natural or man-made) in a soft craft (British Canoe Union, 2015; International Rafting Federation, 2015). The role of the raft guide is to provide an exhilarating experience, whilst maintaining the safety of their clientele. The nature of this occupation is both physically and psychologically demanding (Arnould & Price, 1993). Commercial white-water rafting is growing in popularity, with increasing participation reported in Europe (European Outdoor Group, 2013) and the United States (Outdoor Foundation, 2013). As participation increases, there is a potential for an increase in workload, in terms of the number of

hours worked, undertaken by the guides providing these activities. As white-water rafting is a seasonal activity (March to October), the workloads may vary depending on participant demand, with the greatest workload occurring during the peak of the season in Europe (June to August).

Anecdotal evidence suggests that workers in the Outdoor Industry work long hours and take little time for rest and recovery, especially as some engage in physical leisure activities which are similar to their work (Adventure Activities Industry Advisory Committee [AAIAC], 2006). Empirical evidence has supported this indicating that Mountain Leaders work long hours and engage in physical leisure activities on their days off, despite suffering from musculoskeletal conditions and/or being tired from work (McDermott & Munir, 2012). Evidence from other types of demanding occupations have found that high work demands including long working hours and physically demanding work can lead to work-related fatigue (e.g. Beckers et al., 2004; Van Yperen & Hagedoorn, 2003). There is good evidence that work-related fatigue can have further consequences on individuals' health and their

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abilities to complete everyday activities, such as work (de Croon, Sluiter, & Frings-Dresen, 2003; Kant et al., 2003; Mallinson, Cella, Cashy, & Holzner, 2006; Sluiter, de Croon, Meijman, & Frings-Dresen, 2003). So far, the research has examined workers in predominantly sedentary occupations, therefore little is known about the work-related fatigue of those working in physically active sporting occupations, such as white-water raft guides. This study therefore explores how the working hours, physical leisure activity, and working environment contribute to or protect against white-water raft guides' need for occupational recovery following work across a working season.

1.1. Conceptualising the need for occupational recovery

The need for occupational recovery is a specific state of well-being which refers to the short-term effects of work-related fatigue and has been conceptualised as the desire to replenish internal resources and recuperate in the time immediately following work (Sluiter, 1999; Sluiter et al., 2003). Individuals who chronically recuperate insufficiently following work are more likely to develop a greater need for occupational recovery (Sonnentag & Fritz, 2007). A prolonged need for occupational recovery has been associated with negative effects, such as reduced productivity at an organisational level and poor health, sick leave and disability at an individual level (de Croon et al., 2003; Kant et al., 2003; Sluiter et al., 2003). Furthermore, the need for occupational recovery has been identified as an early indicator of chronic work-related fatigue and psychological distress (Jansen, Kant, van Amelsvoort, Nijhuis, & van den Brandt, 2003). Therefore in the present study, the need for occupational recovery will be utilised as an indicator of fatigue among this working population, as there is no previous literature to suggest whether fatigue is a significant issue among this population.

A lack of psychological detachment from work has been associated with a greater need for occupational recovery on a daily basis (Sonnentag & Bayer, 2005). Individuals with greater workloads are more focused on their work and therefore are likely to think about their work or complete work tasks during their leisure time, resulting in impaired recovery (Sonnentag & Bayer, 2005). Furthermore, employees with high workloads are more likely to work overtime, consider work and home activities as more effortful and report being more preoccupied with work during home time, when compared to their peers with a lower workload (van Hooff, Geurts, Kompier, & Taris, 2007). It is therefore possible that employees who work longer hours are at risk of negative consequences, such as the development of work-related fatigue.

The relationship between the number of hours worked and health may resemble a bell curve and therefore may not be linear. Individuals who do not work enough may just be at risk of negative health consequences as those who work too much (Sparks, Cooper, Fried, & Shirom, 1997). This may explain why not all studies have found a direct association between the number of hours worked and the need for occupational recovery after a working day (Bos, Donders, Schouteten, & Van der Gulden, 2013; Van der Hulst, Van Veldhoven, & Beckers, 2006). However, it could also be that these studies have only focused on non-physically active work such as university and office based administration employees. It is therefore possible that physically active work, such as white-water raft guiding, may require a greater need for occupational recovery at the end of a working day. The following hypothesis was devised to test whether the number of hours worked was linked with the need for occupational recovery among white-water raft guides:

Hypothesis Ia. *A greater number of hours worked per month will be associated with a greater need for occupational recovery across a*

working season.

Physical activity has been suggested to aid the recovery process and reduce work-related fatigue (Korpela & Kinnunen, 2010; Oerlemans, Bakker, & Demerouti, 2014). This is particularly the case when individuals fully detach themselves from work and enter the great outdoors (Korpela & Kinnunen, 2010; Sonnentag & Zijlstra, 2006). It is suggested that increased time participating in outdoor activities in a natural setting helps with psychological detachment and thus improves recovery (Korpela & Kinnunen, 2010). The need for recovery may also be influenced by the physical aspect of physically active jobs (Sonnentag & Zijlstra, 2006). However, the relationship with work-related fatigue may be reciprocal, meaning that individuals who are experiencing high levels of work-related fatigue are less likely to engage in physical leisure activity (de Vries et al., 2015). This longitudinal study of Dutch workers only considered physical activity during leisure time. It is unknown whether individuals working in a physically active job will gain the same benefits of physical leisure activity as observed in those working in sedentary occupations. The following hypothesis was therefore tested:

Hypothesis Ib. *A greater number of monthly hours of physical leisure activity will be associated with a lower need for occupational recovery across a working season.*

It is not known whether the effects of working long hours in a physically active occupation, such as white-water raft guiding, will increase or reduce work-related fatigue. As rafting can occur on a variety of bodies of water, including natural rivers and man-made course it is unknown whether being surrounded in a natural or unnatural environment will affect the need for occupational recovery of white-water raft guides. Exposure to a natural outdoor environment has been associated with positive physical and psychological well-being (e.g. Cervinka, Röderer, & Hefler, 2011; Hug, Hartig, Hansmann, Seeland, & Hornung, 2009; Nisbet, Zelenski, & Murphy, 2011). Specifically, engaging in physical activity and socialising with others in a natural setting is associated with higher levels of physical and mental energy (Ryan et al., 2010). This has been demonstrated by the Attention Restoration Theory which poses that interactions in nature do not require directed attention, thus allowing top-down directed attention abilities to replenish (Berman, Jonides, & Kaplan, 2008). It is important to note that all of these studies made comparisons between the benefits of exposure during leisure time in nature and either an urban or indoor setting. The present study will test whether the same benefits of being exposed to a natural setting during working hours will have the same beneficial effects as observed during leisure time. As white-water rafting is an outdoor activity which is generally not located in an urban setting, it is therefore possible that raft guides who work on a natural river may experience different levels of need for occupational recovery following work than those working on a man-made course. We therefore proposed and tested the following hypotheses:

Hypothesis II. *Working in a natural outdoor environment (i.e. on a natural river), as opposed to working in an artificial environment (i.e. on a man-made course), will be associated with a lower need for occupational recovery.*

Hypothesis IIIa. *Working longer hours on a natural river will reduce the need for occupational recovery experienced, whereas working longer hours on a man-made course will increase the need for occupational recovery experienced by white-water raft guides.*

Hypothesis IIIb. *White-water raft guides who work on a natural river and participate in a greater amount of physical leisure activity*

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