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Taking a break in the “new normal”: virtual reality relaxation for a stressed workforce

Workers have experienced significant stress during the COVID-19 pandemic. COVID-19 has brought new pressures upon almost all industries, with increased demand on industries deemed “essential” and economic uncertainty for those deemed “non-essential” (Nicola *et al.*, 2020; Nabarro, 2020). This article argues that the pandemic calls for novel solutions to support workers and that virtual reality (VR) relaxation could be piloted as a stress management tool in a greater number of workplaces. The evidence for this technology is emerging and more organisations may wish to pilot this innovative approach to benefit staff well-being.

Many workers, “essential” and “non-essential”, have had to manage new professional pressures and uncertainties, alongside the impact of the pandemic on their personal lives, such as social isolation, worries about infection, and loss and bereavement (Brooks *et al.*, 2020). Key workers, such as health-care professionals, supermarket workers and delivery drivers, have been widely praised by media outlets and the general public for adapting quickly to a new normal of greater responsibilities and coping with increased pressure in services already under strain (Weyman *et al.*, 2019), in addition to facing higher exposure to the infection than the general population (Nyashanu *et al.*, 2020; Johnson *et al.*, 2020; The Lancet, 2020). Health-care professionals are known to be at greater risk of sustaining “moral injuries”, from making choices around allocating constrained resources and balancing patient care with their own needs (Greenberg *et al.*, 2020). Although “non-essential” workers have received less attention in the public sphere, they may be just as likely to be impacted by COVID-19, with research indicating that the economic-related anxiety likely to be experienced by “non-essential” workers is as prevalent as health-related anxiety and may be a risk factor for developing symptoms of distress typically associated with post-traumatic stress disorder (Baraket-Bojmel, 2020; DiCrosta *et al.*, 2020). Working from home has become the new normal for many, especially “non-essential” workers, which has brought benefits for some, but also new challenges. Increased flexibility around working hours and environment has blurred the boundaries between work and home, which has meant that it has become difficult for workers to “switch off” and get adequate respite from the demands of their work (Kotera and Vione, 2020).

In recent years, VR has emerged as a useful tool for reducing stress, underpinned by the theory that interacting with pleasant stimuli in our environment can induce positive emotional states (Riva *et al.*, 2007, 2012; Riches *et al.*, 2021). As VR can immerse users in virtual environments, such as forests or beaches, this technology alleviates stress in a similar way to mental imagery or visualisation exercises. However, by evoking a greater sense of “presence” in the environment, VR can induce feelings of relaxation that can be more accessible than using mental imagery, which relies largely on the imaginative capacity of the individual (Villani *et al.*, 2012).

A large proportion of this VR research has investigated the restorative effects of “virtual nature” in the workplace, based on the idea that virtual nature may represent an effective alternative to real nature in the design of stress reduction interventions (White *et al.*, 2018).

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The value of virtual nature is clearly far greater now given that large numbers of people have been confined to urban environments or cannot leave their homes because they are shielding. Some of this VR research has involved incorporating elements of virtual nature into the office environment, for example, placing “virtual windows” or large television screen displays of nature in workplaces, and playing sounds of running water to mask noise distraction (Wohn *et al.*, 2020; Kahn *et al.*, 2008; Abdalrahman and Galbrun, 2020). One study found that an “immersive break room”, containing LED screens displaying park scenery, audio of birds chirping and a composition of pleasant outdoor scents, could induce greater improvements in mood and reduced feelings of fatigue than a standard break room (Sona *et al.*, 2019). This effect was mediated by participants’ perceptions of getting “away” from their normal working environment, indicating that the immersive element of VR was crucial in the respite from work-related stress.

As work-related stress is known to vary by occupation, research has investigated the effectiveness of VR-based interventions for workers who are exposed to highly distressing incidents or required to manage high demands, such as military medical personnel, health-care professionals and teachers (Stetz *et al.*, 2011; Cikajlo *et al.*, 2011; Gaggioli *et al.*, 2014). Head-mounted display (HMDs) technology can provide a fully immersive VR experience (Yeo *et al.*, 2020) and studies have used HMDs to enhance stress reduction interventions for these worker populations. For example, a randomised controlled trial tested the effectiveness of a five-week HMD relaxation intervention with teachers and nurses, who engaged in guided relaxation in virtual nature scenes after taking part in stress-inducing simulations related to their work (Gaggioli *et al.*, 2014). This intervention reduced stress and anxiety, with outcomes that were better than a control group who received cognitive behaviour therapy. Such HMD interventions have typically used VR relaxation in conjunction with other relaxation techniques known to reduce stress, and so the stress-reduction properties of the virtual environment alone are unclear; however, these initial studies present a foundation on which future research may build, which could add to the rapidly growing literature currently aiming to develop solutions for the “essential” workers experiencing stress as a result of COVID-19.

Pilot studies support the acceptability of HMD VR-enhanced breaks for office-based workers (Thoondie and Oikonomou, 2017; Ahmaniemi *et al.*, 2017), with one study finding that participants reported feeling able to “forget about work” and “distance themselves from work” during a 25-min session of nature-based HMD VR (Ahmaniemi *et al.*, 2017). Another study found that practicing guided breathing in an immersive void of colourful lights and sound could reduce self-reported negative affect and heart rate, key indicators of stress (Naylor *et al.*, 2019). These researchers argue that these technologies can provide organisations with cost-effective solutions to reduce stress in their employees, as doing so has potential to reduce rates of burnout and staff sickness.

Though research is yet to trial VR relaxation for home-based workers, these findings suggest that VR may be helpful in being able to offer home-based workers some distance from their current working environment, which may lessen the impact of blurred work-home boundaries and allow workers to suitably recover from the stress of their work and their lives during the pandemic (Kotera and Vione, 2020; Baraket-Bojmel, 2020; DiCrosta *et al.*, 2020). Using VR in this way could provide an alternative “escape” for all workers, considering that social distancing measures have restricted access to leisure and social activities, many people are shielding or restricting contact with other people, and many workers are in urban environments with limited access to nature. “Virtual holidays” to real-world destinations are even being marketed as a “digital alternative” to travel and have gained popularity during the pandemic (Chirisa *et al.*, 2020).

Given that HMDs are now more widely available and affordable for consumers, all these options have become realistic possibilities. The cost of VR technology has reduced enormously in recent years, and research now suggests that cheaper alternatives may be just as effective as high-quality VR (Yeo *et al.*, 2020). Considering the need for stress

reduction in the current climate, the potential cost-effectiveness of stress reduction (Naylor *et al.*, 2019), and the benefits of VR relaxation for alleviating workers' stress, it now seems more important than ever that VR technology is made more widely available for stress reduction in the workplace. This is a novel area of stress management and clearly further research is needed to support this innovation; but with increasing dependence on technology for work activities, VR relaxation may be the ideal intervention for a stressed workforce both during and after the pandemic.

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