**Rationale**

Natural environments are increasingly seen as public health resources (Hartig et al., 2014). Provision of ‘green’ spaces in the living environment in particular has been associated with positive health outcomes including reduced mortality (Rojas-Rueda et al., 2019), morbidity (Maas et al., 2009), improved general health (Klompmaker et al., 2019), and mental health (Gascon et al., 2015). Despite this, provision of urban green infrastructure is often seen as insufficient for improving health and reducing health inequality, with suggestions that supporting recreational contact is necessary (Hunter et al., 2019). Indeed, visiting green spaces for recreation has been associated with reduced stress (White et al., 2013), increased energy expenditure (Elliott et al., 2015), improved psychological wellbeing (White et al., 2017) and reduced mortality (Sulander et al., 2016).

The recreational use of greenspace is now recognised by the UK government as a key public health indicator (Department of Health, 2016), and recognition of the importance of the connection between green spaces and health is central to DEFRA’s 25-year plan (Department for Environment, Food & Rural Affairs, 2018). Internationally, green spaces are recognised by the World Health Organisations as settings which have the potential for equitable health improvement across a wide spectrum of populations (World Health Organization, 2016, 2017). The economic value of green spaces to human health at a national level have been assessed in a number of ways (Day & Smith, 2016; White et al., 2016), and business applications of this are beginning to be realised through large-scale grants to develop decision support tools for urban planners, for instance (*Greenkeeper*, n.d.).

**With the onset of COVID-19 in the UK, the importance of recreational park use was brought into sharp focus as one of very few recreational opportunities that was permissible during the initial lockdown period (Department for Environment, Food & Rural Affairs, 2020). Internationally, anecdotal research has pointed to increased recreational use of greenspace during lockdown periods (Ahmadpoor & Shahab, In Press; Rice & Pan, 2020; Venter et al., 2020). On the one hand, this potentially presents opportunities for maintaining good health in otherwise isolated times (Slater et al., 2020). On the other hand, a lack of alternative recreational opportunities could mean that parks become busier hotspots for recreation and therefore present risks to the transmission of COVID-19 (You et al., 2020). This could be especially true given clement climatic conditions (Elliott et al., 2019; MacKerron & Mourato, 2013; Rice & Pan, 2020; Wolff & Fitzhugh, 2011). It is plausible that any increases in park visits may be sustained even in the face of relaxed restrictions as they are viewed as safer spaces; efforts to monitor this possibility nationally throughout the course of the pandemic are ongoing (Natural England, 2020).**

In response to this, we have developed an app drawing on entirely open data which attempts to forecast park use at the upper-tier local authority level in England. Specifically, we combine weather data from the Met Office COVID-19 response, access to greenspace data from Ordnance Survey and the Office for National Statistics, historical greenspace visits data from Natural England’s Monitor of Engagement with the Natural Environment survey (Natural England, 2019), to experimentally predict the continually-updated parks mobility data released by Google in response to the pandemic. Uniquely, we use weather forecasts alongside historical weather and social science data to predict how busy parks in a certain local authorities may be in the coming days, providing proof-of-principle for a future app using non-Google data that could aid decision-making. Broadly, this interdisciplinary investigation falls under NERC’s medical and health interface, and aligns with their increasingly interdisciplinary and collaborative remit as it incorporates both social science and atmospheric science data sources, and is a partnership between three academic institutions as well as Natural England, an executive non-departmental public body.

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