

Nature-based mental health: research and implementation agenda



Mental ill health is widespread, worsening, costly, and underfunded.¹ Exposure to nature is advocated as a treatment, in addition to counselling and pharmaceuticals.^{2,3} Evidence that nature improves mental health is available from randomised controlled trials, longitudinal studies, and involuntary nature deprivation during COVID-19 pandemic lockdowns.^{3,4} Such evidence includes cognitive, affective, behavioural, physiological, and neurological measures across demographics and life histories.²⁻⁵ However, there is less supporting evidence for diagnosis, design, and effective dose and duration for nature therapy courses, and for incentives and obstacles to adoption.^{2,6} Health-care systems require medically approved prescribable products, and approval systems demand randomised controlled trials for fully-specified treatments.

For nature-based mental health, specifying treatment designs first requires comparison of all relevant design parameters, including terrain, weather, and ecosystems; patient activities, skills, senses, and emotions; logistics, safety, interpretation, and psychological counselling; session length and frequency; and course duration, either fixed or indefinite. Diagnosis and patient personalisation also need to consider age and gender, mental health symptoms, life stresses, outdoor experience and capabilities, personality, psychological barriers, and social obstacles. Research to date has tested only some of these parameters.

Current research has indicated that more than 2 h per week of nature exposure, indefinitely, is the minimum for detectable mental health benefits;⁷ more than 5 h participation per week for 12 weeks in a group programme with peer support, personal challenge, and a social-purpose incentive maintained participation throughout a course of nature therapy;⁶ and there are benefits to mental health from exercise, peer support, biodiversity, nature connection, and sensory engagement.^{6,8}

We propose four priority research questions for design of nature therapies. First, how long do mental health benefits persist once nature contact ends? Second, does nature yield benefits additional to counselling or drug

therapy? Third, do so-called thrill and skill adventure recreation activities add benefits to contemplative nature experiences? Fourth, do interpretive guides or therapists add to the benefits of self-guided nature experiences and, if so, is this because guides provide confidence in safety, offer interpretive information on terrain and biodiversity, direct attention to sensory experiences, or another reason?

Implementation research is also needed. Current research shows that urban greenspace is valuable, but effects are limited; visits to national parks are effective, but many people do not visit parks; outdoor tourism models in Japan and Australia are effective, but not connected to health-care systems; green prescriptions from general practitioners are too short, and so-called walk-and-talk outdoor psychology counselling sessions⁹ are too brief; brokers to connect patients with volunteer outdoor recreation organisations have high dropout; and large-scale forest therapy facilities in China are yet to be tested. In many countries, the most effective approach might be via occupational therapy,¹⁰ where there are funding systems for repeated sessions of outdoor activities, and existing connections to workplace health. Additionally, occupational therapies focus on action rather than talk, which allows for silence and sensory appreciation of nature. Therefore, we propose occupational therapy as a priority for implementation research.

In conclusion, we argue for a shift in emphasis in research on nature and mental health, from now extensive proof-of-concept approaches to detailed design of courses of therapy that can be subjected to medical-standard trials, and to practicalities of implementation so that nature therapies can be included in post-COVID-19 pandemic mental health recovery worldwide.

We declare no competing interests.

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