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The effect of a therapeutic nature-based intervention on stress in people with mental ill-health

Submission date
01/05/2025

Recruitment status
No longer recruiting

Registration date
06/06/2025

Overall study status
Ongoing

Last Edited
30/10/2026

Condition category
Mental and Behavioural Disorders

[_] Prospectively registered
[_] Protocol
[X] Statistical analysis plan
[_] Results
[_] Individual participant data
[X] Record updated in last year

Plain English summary of protocol

Background and study aims
It is thought that urban green and blue spaces provide a range of benefits for people and nature. The GreenME study aims to find out more about the mental health and well-being effects of nature-based therapy programmes for adults with a mental health condition.

Who can participate?
People who have been referred to, or have self-referred, because of stress in daily life, to one of two community-based organisations that provide nature-based interventions.

What does the study involve?
Participants will attend the nature-based intervention once a week for ten weeks, with each session lasting 2 hours. There are two areas involved in this study, and the activities depend on the location. Area 1 includes activities such as going for a nature walk, nature craft, tree identification, cloud gazing, whittling, foraging, and focusing on breathing, letting go of stress and deepening connection to nature and each other. In Area 2, participants are offered opportunities to experience ocean and coastal activities. Activities include surfing, walking on the beach, coastal care work, beach art, foraging and mindfulness exercises.

People who are part of the study will complete a series of four questionnaires throughout their programme.After everybody has done an initial questionnaire, two groups will be created. One will be the ‘straight away’ group, who will start the intervention without delay. People in this group will complete additional questionnaires at the end of the programme, 4 weeks after that, and then a final one 8 weeks after that (3 months after the programme finished). Those in the waiting group will wait about 10-12 weeks and then complete a questionnaire just before starting their nature-based intervention. There will be a questionnaire at the end of the 10-week programme, and then a final 4 weeks after that. Both groups will complete four sets of questionnaires in total.

What are the possible benefits and risks of participating?
People who experience the intervention will be exposed to natural environments that might be

beneficial. In the longer term, it is hoped that this study will contribute to the understanding more about the impact of nature-based interventions on mental health and wellbeing. The study is low risk, but it does involve thinking about mental and physical health, which for some people may be difficult.

Where is the study run from?
The University of Salford, UK

When is the study starting and how long is it expected to run for?
September 2023 to August 2027. The study recruitment starts in May 2025 and is expected to run until July 2026.

Who is funding the study?
The Horizon Europe Research and Innovation Programme, EU

Who is the main contact?
Prof Penny Cook, School of Health and Society, University of Salford, P.A.Cook@salford.ac.uk

Contact information

Type(s)
Scientific, Principal investigator

Contact name
Prof Penny Cook

ORCID ID
https://orcid.org/0000-0001-6435-8050

Contact details
School of Health and Society, Allerton Building, University of Salford
Salford
United Kingdom
M6 6PU
+44 (0) 161 295 6052
p.a.cook@salford.ac.uk

Type(s)
Public

Contact name
Dr Sarah Knight

ORCID ID
https://orcid.org/0000-0002-9977-8810

Contact details
School of Science, Engineering and the Environment, Newton Building, University of Salford
Salford
United Kingdom
M5 4WT

+44 (0)161 295 5000
s.j.knight1@salford.ac.uk

Additional identifiers

Protocol serial number
Horizon Europe Grant Agreement 101084198; Salford Worktribe Ref 1344901

Study information

Scientific Title
The effect of therapeutic nature-based interventions on stress reduction in people with mental ill-health: a randomised controlled trial versus treatment as usual

Acronym
GreenME

Study objectives
Nature-based therapies tested in GreenME are superior to Usual Care in decreasing participants' perceived stress when comparing baseline to just after exposure measurement

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 07/05/2025, University of Salford Health and Society Research Ethics Committee (Maxwell Building, The Crescent, Salford, M5 4WT, United Kingdom; +44 (0)161 295 5000; ethics@salford.ac.uk), ref: 2025-4552-6075

Primary study design
Interventional

Study design
Two-centre interventional randomized controlled trial with analysts blinded to treatment group

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Reduction in stress in those with self-reported moderate-to-high perceived stress levels

Interventions
Adults experiencing significant stress in their daily life and have been referred, or have self-referred, due to poor mental health, will be randomised to either receive a nature-based intervention straight away or be placed on a waiting list.

The project will use block randomisation. Sequences for all interventions will be computer-generated by an independent researcher from the University of Barcelona's Core Team, not involved with participant recruitment and allocation.

Treatment is in groups of 10-12 participants and involves 10 weeks of weekly 120-minute sessions. Treatment depends on geographical location. Area 1 includes activities such as going for a nature walk, nature craft, tree identification, cloud gazing, whittling, foraging, and focusing on breathing, letting go of stress and deepening connection to nature and each other. Sessions are adapted to be accessible for those with complex, overlapping health and mobility needs. In Area 2, participants are offered opportunities to experience ocean and coastal activities, whilst being supported by trained professionals and trained volunteers. Activities include surfing, walking on the beach, coastal care work, beach art, foraging and mindfulness exercises.

After 10 weeks, those allocated to the waiting list will receive the intervention. Whilst on the waiting list, participants will receive usual care.

Intervention Type
Behavioural

Primary outcome(s)
Psychological stress measured using the Perceived Stress Scale (PSS-10) at:
For exposure group: Baseline, Follow up 1 (week 10); Follow up 2 (week 14); Follow up 3 (week 22)
For waitlist group: Baseline, Follow up 1 (week 10); Follow up 2 (week 20); Follow up 3 (week 24)

Key secondary outcome(s)
Measured at:
For exposure group: Baseline, Follow up 1 (week 10); Follow up 2 (week 14); Follow up 3 (week 22)
For waitlist group: Baseline, Follow up 1 (week 10); Follow up 2 (week 20); Follow up 3 (week 24)
1. Quality of Life measured using the EuroQol 5 Dimensions 5 levels (EQ-5D-5L)
2. Wellbeing measured using four measures of the Office for National Statistics version 4 (ONS-4)
3. Nature connectedness measured using the Nature Connection Index (NCI)

Completion date
31/08/2027

Eligibility

Key inclusion criteria
1. Between the ages of 18 – 75 years
2. Comply with eligibility criteria to access and take part in the evaluated intervention
3. Stress interference in daily life is significantly or very significantly elevated
4. Either: often or very often experiences of discrimination or prejudices in daily life OR Yes-experiencing persistent poor sleep quality/poor mood/low energy levels/sadness/fatigue /anxiety (as assessed by the screening questionnaire)
5. No previous (last year) or current participation in the same type of nature-based therapy

Participant type(s)
Other

Healthy volunteers allowed
No

Age group

Mixed

Lower age limit
18 Years

Upper age limit
75 Years

Sex
All

Total final enrolment
74

Key exclusion criteria
1. Intellectual disability (ICD-11 6A00)
2. Phobias that can highly impact the capacity to benefit from the evaluated interventions, such as social and insect-related phobias (ICD-11 6B02, 6B03, 6B04)
3. Dissociative behaviours (ICD-11 6B60, 6B61, 6B62, 6B63, &b64, 6B65, 6B66, 6E65, 6B6Y, 6B6Z)
4. Mental or behavioural symptoms, signs or clinical findings that can highly impact the capacity of the intervention group to benefit from the evaluated interventions or that increase the potential to become difficult cases to handle by project staff (ICD-11 MB23.0, MB23.R, MB23.S)

Date of first enrolment
28/05/2025

Date of final enrolment
31/07/2026

Locations

Countries of recruitment
United Kingdom

England

Wales

Study participating centre
Northern Roots (Oldham) Ltd
Oldham Council
Alexandra Park Offices
Kings Road
Oldham
England
OL8 2BH

Study participating centre
Tonic Surf
68 Derwen Gardens
Adpar
Ceredigion
Wales
SA38 9PS

Sponsor information

Organisation
University of Salford

ROR
https://ror.org/01tmqtf75

Funder(s)

Funder type
Government

Funder Name
UK Research and Innovation

Alternative Name(s)
UKRI

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
United Kingdom

Results and Publications

Individual participant data (IPD) sharing plan
We will deposit processed, grouped and anonymised data (and their metadata) in a trusted repository (either http://ddd.uab.cat, https://dmp.csuc.cat, https://zeonodo.org). This data will be shared in standard format (.csv, .doc, .pdf, .jpg, or .txt). When making this data public, we will

also create a Digital Object Identifier (DOI) that will be assigned to this dataset. Metadata for this dataset will be created using the Dublin Core standard (see https://www.dublincore.org /specifications/, or equivalent metadata standard), a generic standard appropriate across disciplines. Keywords will be included in the metadata following an established thesaurus (e.g., MESH terms, or similar) to allow for discoverability. Processes for storing and accessing this data will be reviewed by the Universitat Autònoma de Barcelona (UAB) ethics committee (GreenME lead partner) before publication. The data will be maintained and available for at least 5 years following the end of the study.
• The following information will be shared only upon request:
o The processed data files that support results published in scientific publications.
o Related documentation (i.e., metadata, codebooks, ontologies) related to the data; and
o The analysis code to reproduce and validate the quantitative results of published articles. This code will be provided in the coding language of the software used to analyse the data, which will also be specified.
• The following data are not expected to be shared:
o The original raw data collected from the evaluation of nature-based therapy programs in WP3.
o Any non-anonymized digital research data (e.g., any data containing personal identifying information).
o Qualitative data, such as sound recordings or transcripts

The datasets generated during and/or analysed during the current study are available from the corresponding author on reasonable request:
Dr Margarita Triguero-Mas, GreenME Scientific Co-ordinator, Faculty of Health Sciences, Universitat Oberta de Catalunya, mtrigueromas@gmail.com

IPD sharing plan summary

Available on request, Stored in non-publicly available repository

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Participant information sheet			27/05/2025	No	Yes
Participant information sheet			27/05/2025	No	Yes
Statistical Analysis Plan	version 1.3		30/10/2026	No	No
Study website		11/11/2025	11/11/2025	No	Yes