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Forest school research

Submission date 05/09/2024	**Recruitment status** Recruiting	[_] Prospectively registered [X] Protocol
Registration date 11/09/2024	**Overall study status** Ongoing	[_] Statistical analysis plan [_] Results
Last Edited 15/05/2025	**Condition category** Other	[_] Individual participant data [X] Record updated in last year

Plain English summary of protocol

Background and study aims

A growing number of children and young people are experiencing poor mental health. Getting the right help can be difficult because waiting times for children's and adolescent mental health services are long. Schools can offer opportunities for children and young people to receive well-being support tailored to their needs and learning levels. Being outdoors and connecting with nature can help people's mental health. However, it is well documented that young people are not spending enough time outdoors, which can negatively impact both their physical and mental health. Forest Schools, a method of outdoor-based learning, are becoming increasingly popular in community settings and schools. While participation in Forest Schools may benefit children's mental health, there is currently insufficient evidence to support this claim. There is a need to improve the quality of evidence regarding the effectiveness of Forest Schools for children's mental health. This study aims to assess the feasibility of conducting a randomised controlled study of Forest Schools in primary schools across England in which they are randomly put into different groups to compare the effects of the intervention against a control group to see if it works. The study seeks to determine whether Forest School is acceptable to both children and school professionals.

Who can participate?

Schools with existing capacity and training to deliver Forest School as defined in the study intervention and all Key Stage 2 children aged between 7 and 11 years old within the specified class

What does the study involve?

The study will first identify primary schools that can implement Forest Schools. Efforts will be made to ensure that the participating schools offer similar activities. Children will be randomly assigned into two groups, each engaging in different activities. In this study, the groups will consist of schools with selected Key Stage 2 classes. Two schools will participate in Forest School for 12 weeks during the Spring term, and two additional schools will participate for the same duration during the Summer term. The remaining schools will continue with their usual term-time activities and serve as the control group. The study will assess whether the necessary data can be collected and whether enough participants can be recruited within the available timeframe. Interviews will be conducted to gather feedback on what worked well and what did

not. This information will inform future planning for Forest Schools. Additionally, data on the costs associated with running Forest Schools will be collected to determine whether a larger study can be conducted to evaluate the impact of Forest Schools on children's mental health.

Patient and public involvement: The research team includes two PPI (Patient and Public Involvement) leads who work closely with children and young people. There is also the inclusion of a parent carer of children with additional needs and a Forest School teacher at a special educational needs school. Collaboration with Humber NHS Teaching Foundation Trusts has enabled the involvement of children and young people in the development of the research application. PPI events have been conducted in four schools, where children participated in both classroom and outdoor activities. This has helped in developing a version of Forest School specifically for this study.

Dissemination: Plain English summaries of the study's findings will be produced, with support from the PPI group. The results will also be published in scientific journals and presented at public health and education conferences. Throughout the study, blogs and social media platforms such as Instagram and Twitter will be used to keep parents, schools, and Forest School professionals informed of the study's progress.

What are the possible benefits and risks of participating?
The benefits to the school will include a training session from the study team and an ongoing community of practice which will support continuing professional development and upskilling in the use of Forest Schools for both individuals and the wider school. The school will be part of a National Institute for Health Research study which will contribute to the development of new knowledge, policy and practice guidance.

The study involves asking participants to allocate time to answering questions using questionnaires and interviews. The impact of these activities on school schedules will be minimised and where possible opportunities identified to conduct these off-site and outside school hours. Schools involved in the delivery of forest school will be asked to allocate time to sessions within existing timetables which could impact the means to offer other educational activities. Where possible the research team will work with the school to ensure that forest school sessions are integrated within existing timetables.

Where is the study run from?
The University of York

When is the study starting and how long is it expected to run for?
June 2024 to June 2026

Who is funding the study?
National Institute for Health and Care Research (NIHR)

Who is the main contact?
Dr Hannah Armitt, hannah.armitt@nhs.net

Contact information

Type(s)
Public, Principal Investigator

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Additional identifiers

EudraCT/CTIS number
Nil known

IRAS number
337007

ClinicalTrials.gov number
Nil known

Secondary identifying numbers
205640, IRAS 337007, CPMS 59695

Study information

Scientific Title
Forest school INterventions for Children's Health (FINCH): a feasibility cluster randomised control trial

Acronym
FINCH

Study objectives

Is Forest School an acceptable and feasible intervention to improve the mental health of Key Stage 2 primary school children? Is it feasible to run a cluster Randomised Controlled Trial (RCT) of Forest School for children in key stage 2? Forest School is a complex intervention and there is no agreed model of transformational process or theory of change. Studies have highlighted some potential pathways to improvements in mental health and well-being including self-regulation, resilience, autonomy, agency, providing nurture, time, and space away from school as well as connection to the rest of nature. This proposed programme allows for iterative cycles of testing and refinement of Forest School as an emotional health and wellbeing intervention in schools. In partnership with our PPI group/members/co-applicants and using current literature, an initial logic model has been developed underpinning programme theory to better understand likely mechanisms of action and pathways to impact emotional health and mental well-being. This work will seek to refine this model at the end of the study to provide a more cohesive framework for the mechanisms of action of Forest School as an emotional and mental health well-being intervention.

This study will generate new knowledge about the feasibility of running a definitive Forest School trial with Key Stage 2 (KS2) children aged between 7-11 with and without SEND. It will test the acceptability and feasibility of delivery, assess the feasibility of trial processes, and establish key parameters for effectiveness and cost-effectiveness. The study team will seek to produce a manualised toolkit informed by our process evaluation and qualitative work to support further research and implementation.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 19/07/2024, University of York, Environment and Geography Ethics Comittee (290 Wentworth Way, York, YO105NG, United Kingdom; +44 (0)1904 322999; environment-ethics@york.ac.uk), ref: DEGERC/Res/12072024/1

Study design
Feasibility cluster-randomised controlled trial

Primary study design
Interventional

Secondary study design
Randomised controlled trial

Study setting(s)
Home, Internet/virtual, Medical and other records, School, Telephone

Study type(s)
Other

Participant information sheet
Not available in web format, please use the contact details to request a participant information sheet

Health condition(s) or problem(s) studied
Children's wellbeing at primary school key stage 2. No specific condition identified.

Interventions

Study Design

The research will consist of four interconnected work packages, using a mixed-method design. In Work Package 1 (WP1), a feasibility randomised controlled trial (RCT) of a Forest School intervention will be conducted with 250 children across 8 schools in Hull, East Yorkshire, and North Yorkshire. Work Package 2 (WP2) will involve an evaluation of the quality and fidelity of the intervention delivery through a process analysis. Work Package 3 (WP3) will focus on the preliminary collection of health economic data, while Work Package 4 (WP4) will use focus groups to refine the logic model and optimise the intervention. A web-based randomisation system will be provided by the York Health Trials Unit (YTU). Randomisation will be conducted at the school level.

Forest School

The Forest School intervention is defined as a non-classroom-based, timetabled session of child-led exploration and play in an outdoor space, designed to encourage connection with and exploration of nature. This intervention model is based on best practices and current definitions, including input from the Forest School Association (FSA), Nature-Friendly Schools, the Creative Outdoor Learning Award (COLA), and patient and public involvement (PPI) through PPI leads, workshops, and schools. In the context of this feasibility study, minimum standards have been established that all schools must follow during Forest School sessions. These include:

An outdoor space featuring natural elements, room for gathering in a circle, and materials such as rope, tools, and natural objects like leaves and twigs. Activities that encourage a connection with and exploration of nature, including sensory interaction with the natural environment, fostering emotional bonds with nature, appreciating its beauty, contemplating its meaning, and demonstrating care and compassion for nature.

Intervention Type

Behavioural

Primary outcome measure

The study will collect feasibility data to inform a future randomised controlled trial of Forest School.

1. Recruitment rate recorded as the number of eligible participants who consent to participate in the study by 8 months
2. Retention rate recorded as the number of schools and participants to withdraw from the study from baseline to 6 month follow up
3. Representativeness of participants recorded by collection of demographic information at baseline to determine if the intervention is accessible for a diverse population. Age; gender (male/female/third gender); ethnicity (based on ONS categories); special educational needs and disabilities (children with EHC; diagnosis); Index of Multiple Deprivation based on participant home postcode.
4. Data completeness as recorded by the percent of outcome measures completed by schools, parents and children and young people.
5. Acceptability of trial processes and intervention: This relates to both the intervention and the research process and will be assessed based on descriptive results of the quantitative data of the school sessions carried out and qualitative interviews with participants.

Secondary outcome measures

The following potential primary and secondary outcome measures are collected at 3 time points, (baseline); initial follow-up (week 12); and final follow-up (week 24) for both groups:

Primary outcome measure:
1. The child's emotional and behavioural difficulties, measured using the Strengths and Difficulties Questionnaire (SDQ) parent and teacher versions

Secondary outcome measures
2. The child’s health-related quality of life, measured using the Child Health Utility 9D (CHU9D) questionnaire, self-completed by the child (or proxy for younger children)
3. The child’s psychological wellbeing, measured using the WHO-5 Child Wellbeing Index, self-completed by the child
4. School attendance, measured using attendance registers from Forest School sessions and general school attendance, collected throughout the term
5. The child’s executive functioning behaviours, measured using the Behaviour Rating Inventory of Executive Function (BRIEF), completed by parents and teachers
6. The child’s connection to nature, measured using the Nature Connection Index (NCI), self-completed by the child
7. The classification of the school's outdoor environment, measured using the UK Habitat Classification (UKHab) system, collected by the research team during initial site visits.
8. The local environmental context of the school, measured using online data tools like Natural England's Green Infrastructure map and SHAPE Atlas, at baseline.
9. The spatial analysis of urban green areas around schools, measured using high-resolution data from the Urban Atlas (Copernicus), within 1 km, 3 km, and/or 5 km buffer zones around school buildings, collected at baseline
10. The characteristics of each Forest School session, measured using a self-report checklist completed by the lead Forest School Facilitator after each session
11. The child’s health resource use, measured by collecting data on relevant healthcare services used
12. School resource use, measured using school and staff questionnaires to assess expenditures on infrastructure, equipment, staff time for planning and delivery, and additional resources for children with SEND

Overall study start date
24/06/2024

Completion date
30/06/2026

Eligibility

Key inclusion criteria
1. Schools with existing capacity and training to deliver Forest School as defined in the study intervention
2. Outdoor space available within school grounds
3. All Key Stage 2 children within the specified class

Participant type(s)
Learner/student, Other

Age group
Child

Lower age limit
7 Years

Upper age limit
11 Years

Sex
Both

Target number of participants
200

Key exclusion criteria
As this is a feasibility study, we will not exclude schools unless they have no access to outdoor space of any type and are not practically able to run Forest School. We are keen to test the feasibility of delivery across a variety of habitats in recognition that this improves accessibility and diversity.

Date of first enrolment
01/09/2024

Date of final enrolment
31/03/2026

Locations

Countries of recruitment
England

United Kingdom

Study participating centre
The University of York
Heslington
York
United Kingdom
YO10 5DD

Sponsor information

Organisation
Humber Teaching NHS Foundation Trust

Sponsor details

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United Kingdom
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+44 (0)1482301726
HNF-TR.ResearchTeam@nhs.net

Sponsor type
Hospital/treatment centre

Website
https://www.humber.nhs.uk/

ROR
https://ror.org/016bnqk64

Funder(s)

Funder type
Government

Funder Name
National Institute for Health and Care Research

Alternative Name(s)
National Institute for Health Research, NIHR Research, NIHRresearch, NIHR - National Institute for Health Research, NIHR (The National Institute for Health and Care Research), NIHR

Funding Body Type
Government organisation

Funding Body Subtype
National government

Location
United Kingdom

Results and Publications

Publication and dissemination plan
1. Planned publication in a peer-reviewed open-access journal under the NIHR publication terms.
2. On completion of the study, the data will be analysed and a final study report will be prepared.
3. The main outcomes of the study will be:

3.1. A manualised toolkit will be produced informed by the interconnected work packages to inform further research and implementation. The toolkit will be an accessible, action-orientated document including Forest School information, resources and tools compiled throughout the study.
3.2. Protocol documents for progression to a full trial
3.3. Accessible presentations, an online workshop with interactive elements and a newsletter. Producing a set of easy-to-read infographics and creative outputs (video/social media).
4. Newsletter posts and social media content will be created and shared as the study progresses.

The study co-applicants come from a wide range of backgrounds and intend to use their networks to ensure good coverage across health, education, and social care nationally. A co-applicant is a fellow of the Royal College of Psychiatrists (RCPsych) and can provide dissemination opportunities at conferences, webinars and events. The co-applicant is also a board member of the Association of Child and Adolescent Mental Health (ACAMH) which can provide educational material about the study for dissemination. The team will also disseminate the results through school organisations such as the National Association of Head Teachers who have previously worked with ACAMH in this capacity. Another co-applicant works for The Wildlife Trust and can provide opportunities to share findings in newsletters, online webinars and across social media. The study is linked to the community of practice for the Mental Health Support Team nationally on the 'Futures Platform' through the Quality Improvement Lead for Children and Young People's Mental Health (NHS England, North East and Yorkshire) and will have the chance to promote the findings through online forums, national and regional MHST newsletters, learning and development and conferences. There are strong links to the local Integrated Care Board and contacts within the Department of Health through the Innovation, Research and Improvement System (IRIS).

Intention to publish date
01/01/2027

Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study will be available on request from Professor Peter Coventry, Peter.coventry@york.ac.uk. The type of data that will be shared are processed data that will include individual-level outcome data for participants, along with descriptive socio-demographic data; and anonymised qualitative data as transcripts. Data will be kept and stored for 10 years; there will be a 12-month initial embargo period on availability to support the publication of core outputs from the trial. Data sharing with others (including researchers at bone fide research and higher education institutions) and public dissemination to support other research in the future is permitted within the current consenting process; no further consent is required. All responses from participants will use pseudonymised identifiers i.e. assigned an ID number kept separate from names. There are no ethical, legal or additional comments.

IPD sharing plan summary
Available on request

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Protocol file	version 1.3	03/09/2024	10/09/2024	No	No
Protocol file	version 2		04/11/2024	No	No
	version 4				

Protocol file	14/05/2025	15/05/2025	No	No