**Project Title:**

Carbon footprinting mental health trials: the GreenerMIND study

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**Introduction**

Climate change represents one of the most pressing challenges of the 21st century, with profound and far-reaching impacts on ecosystems, economies, and human health. Healthcare contributes between 1-5% of global carbon emissions(1), with clinical research playing a significant(2) but underexamined role in this footprint. Clinical trials are essential for advancing medical knowledge, ensuring the efficacy and safety of interventions, and improving patient outcomes. Previous work suggests CTU emissions, trial-specific patient assessments, and trial team meetings and travel are carbon hotspots within clinical trials in general(3,4).

In the UK, mental health problems are the largest cause of disability, affecting all age ranges and populations(5). In recent years there has been a greater push to increase and improve clinical research within mental health from various research bodies (5,6). While there is an obvious and significant need for mental health support and interventions across the board, the related clinical trials often contain resource intensive aspects above and beyond those in other disease areas.

Developing and implementing strategies to reduce emissions in clinical research is essential for aligning the sector’s operations with local and global sustainability goals. This study builds on previous work quantifying the carbon footprint of a broad range of clinical trials(3) to focus on the specific context of mental health trials, where there is often a significant participant and site burden due to their extensive data collection requirements, complex interventions, and increased need for home visits. By calculating the carbon footprint of these trials and identifying key areas for emissions reduction, this research aims to contribute a more sustainable approach to mental health clinical research while preserving its scientific and therapeutic value.

**Objectives**

* Calculate the carbon footprint of at least four mental health trials
* Identify any carbon hotspots within mental health trials
* Compare the carbon footprint, and carbon hotspots of mental health trials with trials of other conditions

**Progress**

Two trials were located within the host Clinical Trials Unit (CTU (Liverpool Clinical Trials Centre, LCTC)). The study was advertised to registered CTUs via the UKTMN’s (UK Trial Management Network) monthly bulletin, alongside direct advertisements to the heads of six UK CTUs. A main health area of mental health was a prerequisite for inclusion, and trials were included to represent a range of trial designs, interventions, and procedures. The selected trials and their associated CTUs are presented in Table 1.

Table 1. Selected trials and associated CTUs

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| --- | --- | --- | --- |
| CTU | Trial Name | Link to Protocol | Description |
| LCTC | QUEST | Not yet published | A pragmatic, double blind, placebo-controlled, randomised trial. The overall aim of the study is to understand whether adding quetiapine to treatment as usual (TAU), in comparison to placebo and TAU, improves the mental health of people with borderline personality disorder (BPD). |
| LCTC  | GOTHIC 2 | [Link](https://www.fundingawards.nihr.ac.uk/award/NIHR131157) | A 3-arm multi-centre randomised placebo-controlled trial. The overall aim of the study is to ascertain efficacy of either hyoscine hydrobromide or glycopyrrolate in comparison to placebo in the treatment of CIH (clozapine-induced hypersalivation). |
| Leeds Institute of Clinical Trials Research | FReSH START | [Link](https://pmc.ncbi.nlm.nih.gov/articles/PMC11346196/) | A multi-centre 1:1 randomised controlled trial. The overall aim of the study is to evaluate the efficacy of standard care plus psychological therapy or standard care alone for adults presenting at an emergency department with repeated self-harm. |
| Lancashire Clinical Trials Unit | Empowered Conversations | Not yet published | A multi-centre randomised controlled trial. The overall aim of the study is to evaluate the efficacy of Empowered Conversations versus standard care alone in reducing carer stress.  |

The four trials were carbon footprinted by LS using the calculator and guidance provided by the work of the Low Carbon Clinical Trials Group (LCCTG) and the Greener Trials working group (3,7).

To calculate the carbon footprint of a clinical trial, the trial activities undertaken (in addition to standard care) to answer the research question, are detailed. These activities are then multiplied by standard emission/conversion factors (emission will be used in this context for the rest of the paper) to translate the trial activities to tonnes of carbon dioxide equivalent (CO2e).

Total carbon footprint across the four mental health trials ranged from 18 tonnes CO2e to 49 tonnes CO2e. The carbon hotspots relating to two or more trials were CTU emissions, trial specific patient assessments, treatment/intervention, and trial supplies and equipment. Overall, most emissions across hotspots were comprised of travel and transport to facilitate intervention and trial assessments.

As expected, mental health trials requiring face to face visits, either for intervention delivery or trial assessments, have increased carbon emissions due to the transport of staff and/or participants. If possible, trials could offer alignment with standard of care (SoC) visits, or integrate virtual visits, to mitigate emissions in this area. Even though all trials follow a hybrid-working model, CTU emissions was led by staff commuting to the office. Workplaces could offer more wide reaching and practical initiatives for sustainable travel practices to reduce this. Utilising the carbon footprint calculator at grant approval stage would allow for early insight into potential hotspots for early mitigation.

**Outputs**

The study has been presented by LS at the Mental Health Trials Methodology Showcase hosted by King’s College London on 25th April 2025

**Future plans**

The study has been accepted for a poster presentation by LS at the UKTMN conference in Newcastle on 3rd June

The aim will be to publish the findings in the BMJ open journal.

**References**

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