Project Title:

Feasibility, opportunities and barriers to the use of n-of-1 designs to evaluate mental health interventions

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Introduction

N-of-1 trials involve an individual undergoing repeated treatment periods, with treatment randomised each time and outcomes measured. The design could be really useful to people with mental health problems, where people often informally try different interventions on themselves and make claims about which work. N-of-1 trials would provide a more rigorous evaluation and could be used to a) generate early-phase signals about interventions that lack a clear pipeline to more confirmatory N>1 trials, thereby speeding up evaluation of mental health interventions, and b) offer individuals a powerful tool to learn about the effects of interventions for them. N-of-1 trials are rarely used in mental health (Hawksworth et al.). This proposal aimed to understand opportunities and identify potential barriers for patients, health professionals and regulators, and involved two aspects:

1. A patient and public involvement focus group to scope the acceptability of N-of-1 trials for people with mental health conditions;
2. Qualitative research to learn about mental health professionals' experience of N-of-1 trials, including barriers.

Objectives

Our objectives were to use these two activities to inform the potential to run N-of-1 trials for mental health conditions, and to inform future methodological research on statistical design and analysis of N-of-1 trials to make them more accessible.

Progress

The grant was set up according to schedule and Ethical approval went through quickly with only very minor notes.

We quickly recruited two temporary staff (Shiva Taheri and Gideon Asamoah) through Unitemps to conduct the interviews.

The PPI group was advertised in October and received 55 applications. We subsequently invited 12, hoping for 6–8 to confirm. In the event, 4 confirmed and all contributed at the focus group on 11 Dec 2024.

The headline results from the PPI focus group were:

- Unwilling to change treatment when things are going well
- Unwilling to stick when things are going badly
- Data collection often leads to paranoia and concern about how data collected may trigger care decisions
- Liberal attribution of outcomes to treatments

- Not interested in N-of-1 trials for medications (exception: psychedelics as high risk/reward), or talking therapies (reasonably), but perhaps for lifestyle interventions, apps, etc.

The first interview was conducted in early Nov 2024 and the last one late Feb 2025. Our target sample size was 20–30 (depending on information power). Recruitment to the interviews was a challenge so we paid for advertising through LinkedIn to improve the number registering interest, finishing with nine participants.

We are currently analysing results of the interviews using the theoretical domains framework.

The preliminary headline findings are that:

- The scope for N-of-1 trials in mental health is limited in terms of both conditions and treatments, but there may be a role for the trials in specific populations, interventions and settings.
- In terms of health professionals, there are various logistical barriers to follow up.
- Health professionals and other participants were positive about possibilities to run N-of-1 trials. Health professionals were more positive about scope for others rather than their own context (grass-is-greener perspective).
- Facilitators would be better awareness, knowledge and training, and seeing N-of-1 trial reports published (blueprints).

Outputs

We are currently writing up a paper for publication summarising these results.

Future plans

There is work to do to address barriers in the research system (funders, academics, ethics committees) that seem to make these sorts of trials in mental health difficult.

The lead of the project is soon leaving academia for industry so is unlikely to contribute further unless industry starts to take more interest in N-of-1 trials.