






STUDY PROTOCOL

# Protocol: Applying co-production and peer research approaches with community organisations to develop a blueprint for the centre for Co-Production and Peer Research (CoPPeR) network.

[version 1; peer review: 1 approved, 2 approved with reservations]

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**V1** First published: 02 Apr 2025, 5:27  
<https://doi.org/10.3310/nihropenres.13886.1>

Latest published: 02 Apr 2025, 5:27  
<https://doi.org/10.3310/nihropenres.13886.1>

## Abstract

## Background

Community inclusive approaches in research contribute to the quality and impact of health outcomes, yet communities often lack considerable influence over research processes. The Co-Production and Peer Research (CoPPeR) network aims to redress this gap by fostering equitable partnerships between communities, researchers, and policymakers. This paper outlines the protocol for establishing the CoPPeR network in Bradford, UK, where community-driven research initiatives are crucial for addressing local health disparities.




## Methods

We will implement four work-packages using participatory research

## Open Peer Review

Approval Status   

	1	2	3
<b>version 1</b>			
02 Apr 2025	<a href="#">view</a>	<a href="#">view</a>	<a href="#">view</a>

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methods and citizen science approaches. We will collaborate with four community organisations, each located in geographically distinct neighbourhoods serving diverse communities. Together we will co-produce citizen science projects to explore the impact of local environments on residents' health and wellbeing. We will build capacity through providing funding and training to community organisations who will recruit 20 peer researchers across the four areas to design, implement, and analyse their individual research projects. We will co-evaluate the co-production processes in a concomitant way through stakeholder workshops. Finally, we will explore the readiness and opportunities for statutory health and research partners to embed the CoPPeR network.

## Results

Anticipated results include comprehensive case studies revealing the factors which affect health and wellbeing in each of the case study sites along with the mechanisms of co-production strategies for enhancing community influence in research. The evaluation will provide us with evidence on what works for which communities; this will be crucial to support our plans for developing a network to augment efforts to advance community inclusive approaches.

## Conclusion

The CoPPeR network aims to enable long-term sustainable partnership between researchers, decision makers and seldom heard communities which will enable effective co-production of research and policy. By detailing our experiences and outcomes we hope that others, both in the UK and internationally, can learn from and replicate our approach.

## Plain Language Summary

Involving communities leads to better research outcomes, yet communities often lack influence over research that affects them directly. This project aims to develop new methods that help communities, researchers, and organisations to work together as equal partners. In Bradford, local communities have highlighted the built environment such as their neighbourhoods and living areas as important to health. This study will empower local groups to use walk-along interviews to explore both the positive and negative aspects of their environments and propose necessary improvements.

Four community organisations from distinct areas of Bradford will be supported to investigate how their local environments affect residents' health and well-being. This initiative will include diverse groups such as Asylum Seekers, Eastern European Roma, economically disadvantaged White British, and Pakistani communities. These organisations will receive funding, training, and support from

researchers to make the community-led research impactful and meaningful. This collaborative method, known as co-production, is designed to generate results that resonate with local needs and attract potential funding for suggested improvements.

By partnering with trusted community organisations that serve diverse ethnic groups, this project will provide opportunities for seldom heard groups to lead efforts in enhancing their local environments. Additionally, this collaboration will strengthen the capacity of these organisations to conduct further research on other community concerns.

We will co-evaluate the implementation and impact of community-based research projects across four partner organisations, to understand what worked well and identify any barriers. This reflective process will refine the methods and ensure each stage of the project remains responsive to community needs. Following these activities, a workshop will bring all partners together to integrate insights and inform best practices, further developing the Co-production and Peer Research (CoPPeR) approach and supporting the creation of a sustainable network for ongoing community-led research.

### Keywords

Co-production, peer research, citizen science, community-based, participatory, built environment, qualitative.

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**Competing interests:** No competing interests were disclosed.

**Grant information:** This project is funded by the National Institute for Health and Care Research (NIHR) under its [‘Research for Patient Benefit (RfPB) Programme’ (Grant Reference Number PB-PG-NIHR205188)]. The views expressed are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care.

*The funders had no role in study design, data collection and analysis, decision to publish, or preparation of the manuscript.*

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**How to cite this article:** Mahmood N, McEachan RRC, Lockyer B *et al.* **Protocol: Applying co-production and peer research approaches with community organisations to develop a blueprint for the centre for Co-Production and Peer Research (CoPPeR) network. [version 1; peer review: 1 approved, 2 approved with reservations]** NIHR Open Research 2025, 5:27 <https://doi.org/10.3310/nihropenres.13886.1>

**First published:** 02 Apr 2025, 5:27 <https://doi.org/10.3310/nihropenres.13886.1>

## Introduction

Public engagement in research, often referred to as patient and public involvement and engagement (PPIE), is heralded as best practice for enhancing the relevance, quality, and impact of research (Ball *et al.*, 2019; Beresford, 2019). Effective PPIE can lead to more efficient use of resources by targeting key research priorities, thereby increasing the likelihood of impactful outcomes (Milton *et al.*, 2012). Additionally, it fosters the development of interventions that are more valuable and culturally appropriate, which can increase community interest and participation in research (Green, 2016). However, successful community engagement requires significant resources and infrastructure support. A deeper understanding of which approaches work best in different contexts is essential to fully realise the benefits of community-inclusive methods (Islam & Small, 2020).

One approach that has gained traction in recent years is co-production; whilst there is not a single definition for co-production (Boyle *et al.*, 2010) it is often described as a collaborative endeavour that is context-dependent and requires building both trust (Albert *et al.*, 2023) and a collaborative ethos amongst partners (Ryan *et al.*, 2024). Co-production, although not easily defined as a single method, represents a value-driven way of working that is contingent on a diverse range of skills and expertise from all co-producers. Despite the potential for improving research and interventions, there is a notable paucity in the evaluation of co-production. This gap presents challenges in determining effectiveness of different approaches and in understanding the mechanisms necessary for effective implementation. These epistemological challenges stem from the deterministic nature of how we measure impact and correlations. The quote often attributed to Einstein – “*not everything that counts can be counted, and not everything that can be counted counts*”- is particularly relevant to co-production, where outcomes such as trust, shared responsibility, collaborative ethos, harmony and influence, which are considered ‘soft’ metrics, are inherently difficult to measure (Brix *et al.*, 2020).

Evidence from various evaluations highlight that interventions introduced to reduce health inequalities do not always serve as a ‘silver bullet’ solution (Craig *et al.*, 2008; Macintyre, 2003; Macintyre, 2011). One possible explanation for this lack of success is the often-superficial focus on community involvement in the development of these interventions. When people are merely consulted to offer opinions on a pre-decided idea, this amounts to rubber-stamping a decision rather than involving people in a genuinely democratic process. This issue is thoroughly explored by Green in her paper evocatively titled “*Power to the people: To what extent has public involvement in applied health research achieved this?*” (Green, 2016). At the heart of this discussion, we can hear echoes of the social philosopher John Dewey, “who rightly emphasised the distinction between ‘*doing with*’ and ‘*doing for*’ when working with people” (as cited in Putnam, 2000, p.116).

In light of these challenges, we recently developed a co-production strategy (Albert *et al.*, 2023; Islam *et al.*, 2022) to

guide researchers and stakeholders through the application of an appreciative inquiry model. We spoke to nearly 100 people based across two case study sites in Bradford, and Tower Hamlets, to understand best practice in working with seldom heard communities with the application of co-production. After carefully analysing the collected data, we identified three core values: (1) equality, (2) enhancing and widening agency, and (3) reciprocity. These values are operationalised through nine principles: 1) power sharing, 2) incorporating a diversity of voices, 3) respecting lived experience, 4) going to communities where they are, 5) working flexibly, 6) avoiding jargon, 7) ensuring mutual benefits, 8) fostering long-term relationships, and 9) securing adequate resources, see Figure 1.

One key recommendation outlined in the co-production strategy (Albert *et al.*, 2023) was to create a sustainable network that would connect communities with researchers, stakeholders, and decision-makers. Such a network would aim to build community capacity and a culture of co-production with research.

This was timely as a recently published national report published by the Cares Foundation and Power to Change highlighted that “71% of UK adults say they have no or not much control over important decisions that affect their neighbourhood and local community” (Plumb & Bell, 2021, p.28). Resolving this mismatch is crucial, as numerous systematic reviews have demonstrated strong links between public involvement and service improvements (Cyril *et al.*, 2015) as well as a reduction in health inequalities that can be realised through such an approach (O’Mara-Eves *et al.*, 2015). We envisage that the establishment of the CoPPeR network will provide a solid platform for communities to play an active role in research thereby realising these outcomes.

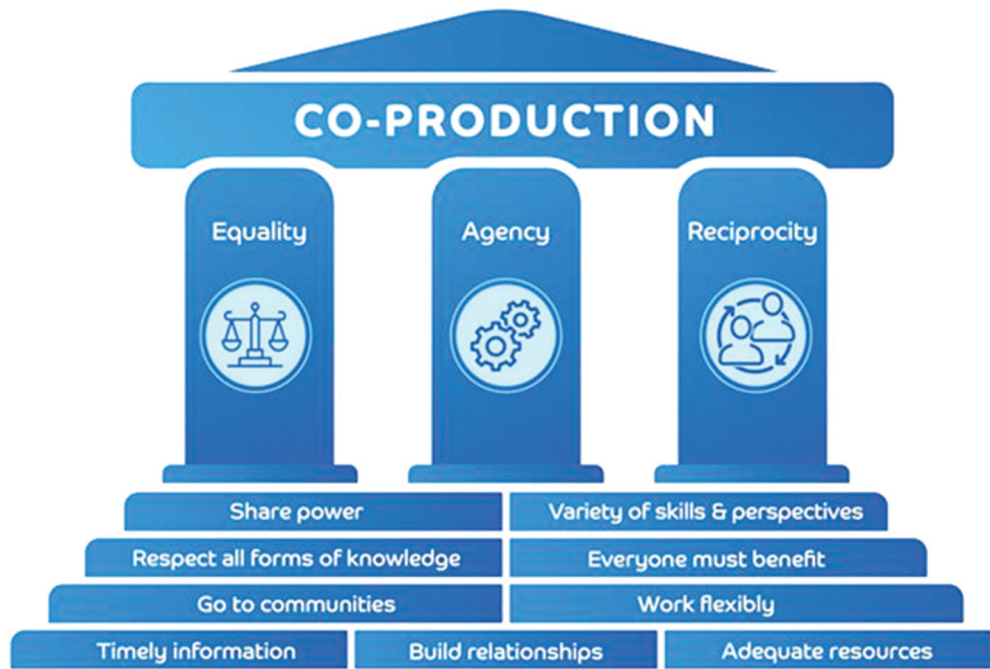
## Introducing the Co-production and Peer Research (CoPPeR) Network

This study aims to action the recommendation of developing a sustainable network through establishing a Centre for Co-production and Peer Research (CoPPeR) which will lead the initiative by using co-production methods to collaboratively identify research priorities and actions with communities.

We will collaborate with community organisations, enabling them to engage with statutory health and research partners within the district. This approach will lay the foundation for diverse communities, particularly those with limited prior engagement with research, to develop research skills and experiences. Our hope is to inspire a new generation of researchers who will build relationships with partner organisations, such as the local authorities and health services to tackle issues of health and social inequalities.

This protocol outlines approaches we will apply to address these challenges and advance the application of co-production approaches. Our aims are to:

1. Develop long-term relationships with key community organisations who work with seldom heard groups.



**Figure 1. The pillars (values) and foundations (principles).** This figure has been reproduced with permission from ActEarly Co-production strategy (Islam *et al.*, 2022).

2. Work with four community organisations to implement place-based citizen science peer research projects with the communities they serve and build organisational capacity for research.
3. Explore barriers and enablers to effective co-production and peer research with seldom heard communities using rapid co-evaluation methods.
4. Co-produce a sustainable model for the Co-Production and Peer Research (CoPPeR) network with communities, voluntary sector organisations, decision makers and researchers.
5. Explore readiness to embed the CoPPeR network within research and statutory organisations across Bradford, with a view to then expanding into other areas within the Yorkshire and Humber region.
6. Explore the impact of resourcing and incentivising community organisations to conduct co-production and citizen science and how this helps or hinders progress.

**Methods**

**Patient and Public Involvement Statement**

This study has been developed in partnership with four community organisations and their members to incorporate meaningful patient and public involvement (PPI) throughout its design, implementation, and dissemination. At the outset, these organisations were consulted to provide input on our plans for the study, facilitated by the Principal Investigator (Shahid), who engaged with them individually.

We worked closely with these four community organisations in developing this research, collaborating with their community co-ordinators to formulate research questions and data collection processes. During this process, they identified training and mentoring as crucial components for both their organisations and peer researchers, as well as the need for sustainable approaches so that these efforts remain effective beyond the project. Each organisation engaged with its community to seek advice on the focus of the co-production research. There was agreement across all four organisations, based on input from both community co-ordinators and local residents, that improving local environments and neighbourhoods should be a priority.

Peer researchers and community co-ordinators, who are also public members, will play a central role in shaping the study’s design and conduct. Drawing on their lived experience as local community members, peer researchers will help refine priorities and maintain the scope of the research so that it reflects community needs. This will be achieved through locally organised workshops and monthly steering meetings with community co-ordinators to discuss project development, monitor progress, and plan impactful dissemination strategies.

Recruitment to the study was decided with the community co-ordinators who have been involved in the study from the outset. Strategies to engage participants will be further co-designed with peer researchers, focusing on making participation accessible and inclusive in line with unique needs of each community they represent. Further details on this approach are provided below.

Community co-ordinators are named as co-authors in recognition of their contributions to the research. The study relies on the engagement and expertise of peer researchers and participants, whose involvement is integral to its success.

**Setting.** Bradford is one of the largest metropolitan districts in England, with a population of over 560,000, including 27.9% under the age of 20. The district is highly diverse, with 25.5% of the population identifying as Pakistani, the second highest proportion nationally. 2% identify as Black and 61.1% identify as White British (City of Bradford Metropolitan District Council, 2025).

Bradford faces significant socio-economic challenges with forty percent of its residents living in areas ranked within the most deprived quintile nationally (Ministry of Housing, Communities and Local Government, 2019). This deprivation is closely linked to higher-than-average levels of ill health and health inequalities. These spatial inequalities result in deprived areas experiencing significantly higher environmental burdens, including air pollution, limited access to green spaces, and elevated traffic levels (Mueller *et al.*, 2018).

Research within the city highlights the wider impacts of environmental stressors, particularly on maternal and child health. Limited access to green spaces is associated with increased stress levels (McEachan *et al.*, 2016; McEachan *et al.*, 2018). Exposure to air pollution has been linked to respiratory issues and restricted fetal growth, (Mebrahtu *et al.*, 2023; Pedersen *et al.*, 2013). An estimated 10% of annual premature deaths (approximately 375 deaths) can be attributed to non-compliance with international guidelines on air and noise pollution, leading to over 300 days of life expectancy lost for each person in Bradford (Mueller *et al.*, 2018). Poorly designed urban environments exacerbate these challenges by restricting opportunities for active living and compounding risks associated with socio-economic deprivation (Binter *et al.*, 2022; Vrijheid *et al.*, 2020; Warembourg *et al.*, 2021).

**Built and natural environment.** Research with seldom-heard communities has identified the built and natural environment (BNE) as a key priority for communities to improve health and wellbeing (Cartwright *et al.*, 2023; Cronin-de-Chavez *et al.*, 2019; Rashid *et al.*, 2021; Wright *et al.*, 2019). The built environment provides a tangible and relatable focus for a co-production study by offering a framework for exploring issues that directly affect communities. Previous research has highlighted several community concerns, including pollution, road safety, poor housing quality, walkability and the increasing prevalence of fast-food outlets (Ortegon-Sanchez *et al.*, 2022; Rashid *et al.*, 2021; Ucci *et al.*, 2022).

These community concerns are matched by a growing body of empirical evidence which demonstrate the significant influence of the BNE on health outcomes (Ortegon-Sanchez *et al.*, 2021). The BNE affects population health both directly (e.g., through polluted air or damp housing) and indirectly (e.g., by limiting physical activity or access to green spaces). These

factors contribute to non-communicable diseases such as cardiovascular and respiratory diseases, cancer, and diabetes (Wright *et al.*, 2013). A consistent finding in this extensive body of research is the clustering and compounding relationship in health inequalities. Poorer neighbourhoods are also the same places which are exposed to higher rates of air pollution, lower quality green spaces, a greater number of fast-food outlets and more dangerous roads. These clustered factors ‘act in concert’ to negatively impact health outcomes, including quality of life and longevity (Marmot *et al.*, 2012; Marmot & Bell, 2012; Wright *et al.*, 2013). Interventions to improve the BNE may improve health and reduce inequalities, but there is limited evidence on the effectiveness of built environment infrastructure changes on health and the extent to which communities have been involved in developing these.

### Study design

This study is composed of four work packages that apply the principles and values outlined in the co-production strategy. See Figure 2.

**Work Package 1** involves conducting citizen science case studies in four distinctive Bradford neighbourhoods, focusing on the built and natural environment to explore the best processes for engaging Bradford’s seldom heard communities in co-producing research. For each group, a community co-ordinator, mentored by the research team, will recruit five peer researchers who will together design, implement, and analyse a citizen science research project. The findings will be disseminated to their neighbourhoods and decision-makers to advocate for policy changes.

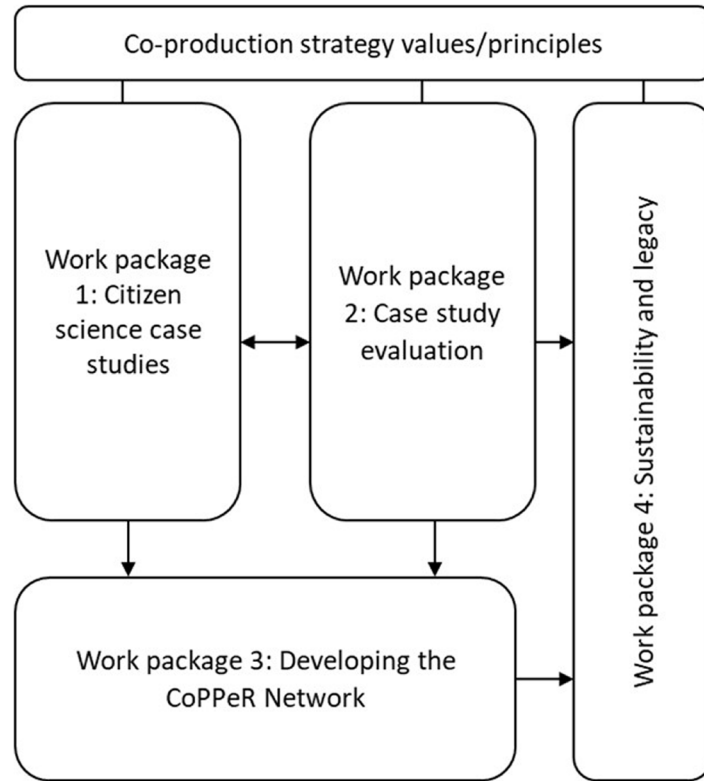
**Work Package 2** will conduct co-evaluation of case studies through participatory workshops, facilitated discussions and activity observations to identify enablers and barriers in the co-production processes as described above in WP1. The analysis will focus on what worked (or did not), considering feasibility, acceptability, and impact, as well as contextual influences.

**Work Package 3** will bring together peer researchers, community organisations, and broader stakeholders in a workshop to ‘dream’ and ‘design’ the key features of the Co-production and Peer Research (CoPPeR) network, integrating insights from Work Packages 1 and 2.

**Work Package 4** will explore the readiness and opportunity for statutory health and research partners to embed the CoPPeR network within their areas of work.

### Citizen science case studies (Work package 1)

We plan to co-produce four citizen science case studies on the relationship between the built and natural environment and health in collaboration with community organisations that specialise in engaging under-served groups, including Pakistani, asylum seekers and refugees, Eastern European Roma, and White British communities. We selected these four diverse Bradford communities based on their distinct identities and geographical



**Figure 2. Overview of key work packages for CoPPeR study.**

locations to achieve broad inclusivity (Table 1). The organisations, chosen for their expertise and established relationships within their communities, are actively addressing local issues such as food insecurity, welfare support, and access to sport and leisure.

Each organisation will appoint a community co-ordinator for this research who will actively contribute to the study design and support their community in developing their citizen science projects and methods. The community co-ordinator will be responsible for all elements of the research process. The esoteric knowledge they hold about their communities will enable us to tailor the research to the specific needs and contexts of each community.

For this study, the research team and the community organisations will collaborate to co-produce a range of hyper-local, community led co-production and peer research projects exploring community priorities related to urban environments that can affect health. We will follow the values/principles of our co-production strategy (Islam *et al.*, 2022) in all activities to focus on some key research questions.

**Case study research questions:**

1. What features of the urban environment do communities prioritise for health?
2. What spatial injustices do communities experience and what do they think will lead to improvements?

We anticipate that the answers to these questions will reveal many commonalities but also differences based on the geographical areas and cultural contexts in which the neighbourhoods are located. We are not seeking consensus amongst the four areas but rather providing the latitude needed to focus on urban environment-related priorities and needs specific to the residents of each area. Therefore, differences in perspectives and experiences will be expected.

**Walk-along interviews**

Data collection will involve guided walks using the citizen science toolkits chosen by peer researchers and community co-ordinators. Walk-along interviews, conducted by peer researchers who will accompany participants (residents) through their

**Table 1. Overview of case study target population and wards.**

<b>Place</b>	Manningham & Girdlington	Horton Park & City	East and West Bowling	Holmewood
<b>Target population</b>	Pakistani communities with origins from Mirpur and Azad Kashmir.	Refugee and Asylum seeker communities settled in the three wards that surround Horton Park.	Central and Eastern European Roma communities.	Low-income White British communities.
<b>Ward</b>	Manningham Population: 21,180 62.7% identify as Pakistani Ranked as most deprived ward in the district.	Great Horton Population: 19,110 48.8% identify as Pakistani Ranked as 9 <sup>th</sup> most deprived ward in the district.	Bowling and Barkerend Population: 22,490 39.9% identify as Pakistani Ranked as 3 <sup>rd</sup> most deprived ward.	Tong Population: 21,270 78.5% identify as White Ranked 8 <sup>th</sup> most deprived ward. (Holmewood is located in Tong ward and comprises one of the largest Housing Estates in the UK).

neighbourhood to gather real-time insights. Each peer researcher will be supported by their co-ordinator to recruit 10 participants from their local area and conduct 10 individual walk-along interviews. With five peer researchers per area, this will result in 50 walk-along interviews per organisation and a total of 200 walk-along interviews across the study.

Peer researchers will be encouraged to document the environment by capturing photographs to contextualise their responses. For example, participants could take photographs of areas they value such as well-maintained green spaces, or locations they find problematic such as fly-tipping hot-spots. Participants will have opportunities to explain the significance of their photographs through written comments or voice recordings, providing richer context and insights about their local environment.

App-based toolkits will be made available to facilitate audio and visual recordings. However, recording this way will not be compulsory as some people may have reasons for not engaging with technology. In such cases we will provide alternatives such as pen-and-paper methods. This flexibility allows each group to tailor the method to their preferences while ensuring the data collection aligns with the study’s objectives.

At the end of the walk, participants will engage in a post-walk discussion to reflect on any topics which may have not surfaced during the walk. These discussions will be audio-recorded, however, participants who prefer not to have their voices recorded can opt for manual documentation in which case peer researchers will manually record written notes.

Whilst our approach is guided by a preference for walk-along interviews using technology to capture data, we have not set this in stone, as co-production is a crucial cornerstone of this

research. It is therefore essential that community co-ordinators and peer researchers can influence the most appropriate and effective ways to collect data. This notwithstanding, each group will co-design the questions and topics for discussion during the interviews, ensuring they are tailored to the priorities and lived experiences of their community. Peer researchers, community co-ordinators, and BIB researchers will collaboratively develop these questions and prompts to reflect the unique needs and concerns of each area. Additionally, each group will have the option to structure their interviews as open-ended, semi-structured, or to utilise simplified approaches combining photographs and audio recordings.

In cases where walk-along interviews are not feasible, the study will explore reasonable adjustments to support inclusivity and accessibility. Alternative methods will be developed to maintain the study’s objectives while accommodating participants’ preferences and contexts.

**Sampling and recruitment of peer researchers**

Each community co-ordinator will establish a place-based action group by recruiting five peer researchers aged 16 and above from their respective areas, resulting in a total of 20 peer researchers across the study. Community co-ordinators will endeavour to recruit peer researchers that reflect the diversity and key characteristics of the target community. Community co-ordinators will utilise standard practices of their community organisation, leveraging established channels and local connections to advertise the role. Recruitment will focus on lived experience to attract individuals with relevant insights.

Peer researchers will dedicate a minimum of 30 hours to activities including training, data collection, analysis and dissemination of findings. They will be compensated for their time at an hourly rate equivalent to minimum wage and

reimbursed for any expenses incurred during the research process. Potential peer researchers will receive an information sheet outlining the project's purpose, study objectives, role responsibilities, and time commitments. Community co-ordinators will explain the study to potential peer researchers, who will then have a week to consider the role before signing the consent form.

### Co-designing the community case studies

An initial meeting will be held with community co-ordinators and research team to outline project parameters, establish expectations, and collaboratively develop research questions and objectives.

When each neighbourhood has recruited the desired number of peer researchers then an initial meeting between members of the research team, the community co-ordinators and the peer researchers will be organised to set out the parameters of the project, set expectations and to formulate plans for co-productive ways of working. This will be organised separately for each of the four constituent areas which will provide an opportunity to allow peer researchers and community co-ordinators to define community priorities with respect to the built and natural environment and to scope relevant research questions.

### Training

The research team, consisting of a community engagement research fellow and a senior research fellow specialising in citizen science, will provide mentorship and training to both the community co-ordinators and peer researchers. They will support peer researchers with the necessary resources to support rigorous research and facilitate its completion within the designated timeline.

All peer researchers (n = 20) and community co-ordinators (n = 4) will participate in two workshop-style training sessions. Additional support sessions will be arranged to address emerging needs of each group. These sessions will be designed to encourage collaboration, build skills, and maintain relevance to each community.

**Training session 1: Introduction and co-production principles.** The first session will introduce peer researchers to the Born in Bradford initiative and the aims of the CoPPeR project. This will emphasise the importance of co-production and how local and community priorities will guide the research process. Peer researchers, community co-ordinators, and the research team will work collaboratively to identify key issues related to the built and natural environment, focusing on existing challenges, community needs, and local perspectives.

**Mind mapping for community priorities and interview questions.** Participatory activities will utilise mind mapping techniques (Burgess-Allen & Owen-Smith, 2010), enabling peer researchers to explore and articulate community priorities in a visually accessible format. This same approach will be used to generate and refine potential interview questions, ensuring they address the topics and concerns most relevant to each

neighbourhood. Through mapping of possible themes and sub-themes, peer researchers will clearly see how their priorities align with specific questions.

**Developing interview and survey tools.** Based on the priorities identified through mind mapping, peer researchers, community co-ordinators and Born in Bradford (BiB) researchers will develop walk-along interview questions. Each organisation will co-produce a topic guide or survey, depending on their chosen methods, to ensure questions reflect the lived experiences of their community. This process will be iterative, providing opportunities to refine both the wording and focus of questions, making them appropriate for each neighbourhood's context and aligned with its built and natural environment priorities.

**Training session 2: research skills and ethics.** The second session will focus on equipping peer researchers and community co-ordinators with essential research skills and ethical principles to conduct community research effectively. Topics will include safeguarding, informed consent, data confidentiality and secure data handling protocols. Training will also address risk assessment during fieldwork and provide hands-on experience using data collection tools, such as mobile devices for capturing real-time data through surveys, photographs, and voice recordings.

A significant component of this session will focus on research methods, including how to conduct interviews effectively, promote non-leading questioning and engage participants in an unbiased manner. Recruitment strategies will also be explored, guiding peer researchers on how to engage diverse participants while adhering to safety protocols. This structured yet iterative approach will equip both community co-ordinators and peer researchers to be thoroughly prepared for ethical, effective data collection and fieldwork.

The research team will provide all necessary equipment, including tools for data collection. Additional support sessions will be planned to address challenges, remind people about training content, and help peer researchers and co-ordinators feel confident in their roles.

### Sampling and recruitment of case study participants

Peer researchers will collaborate with their community co-ordinators to recruit participants. Each peer researcher will recruit ten local community members aged 16 and above through purposive sampling, selecting individuals who reside within the target community within one of the four designated local areas. The boundaries of these areas will not be strictly defined, allowing residents to self-identify as belonging to the locality and community.

Community co-ordinators will oversee the recruitment strategy, support peer researchers with logistical planning and provide guidance on engaging potential participants. They will also prevent duplication and ensure comprehensive coverage of different neighbourhoods within the research locations, reducing the likelihood of recruiting participants from a single

concentrated area. Additionally, recruitment efforts will focus on achieving diversity in age and gender to create a more representative demographic for each community.

Peer researchers will utilise their personal networks and the connections of their community organisations to identify and reach potential participants. These networks may include local faith-based organisations such as churches and mosques, neighbourhood groups and other community-focused initiatives. Community co-ordinators will also leverage their connections to identify potential participants who access services provided by the community organisations they represent. Both peer researchers and community co-ordinators will draw on their knowledge of local customs, languages and practices to build trust and encourage participation.

Potential participants will be approached by peer researchers with an information sheet outlining the study's purpose, objectives, and procedures. Participants will have one week to consider their involvement. If interested, they will complete an interest form by providing their contact information, language needs and any vulnerabilities. Following this the peer researcher and participant will arrange a date and time for the walk-along interview. All participant information will remain strictly confidential and will be shared only with the community co-ordinator.

#### Data collection

The route for the walk-along interview will be collaboratively determined by participants and peer researchers. Participants may select a site of personal significance or opt for a route suggested by the peer researcher, who will possess detailed knowledge of the area. This collaborative process aims to include sites meaningful to the participant, enhancing the relevance of the walk-along interview.

Before the walk-along interview begins, participants will provide written informed consent by reviewing the information sheet, having an opportunity to ask questions and completing the participant consent form.

Data will be collected during walk-along interview using methods, toolkits and questions developed by each group, focusing on the built and natural environment of the area. Participants will have the opportunity to take photographs and document observations as they explore their neighbourhoods. At the conclusion of the walk, participants will be invited to reflect on their experience and share additional thoughts. This feedback may be audio recorded with their verbal consent or the peer researcher may document it using written notes, based on the participants preference.

As an acknowledgement of their time and contribution to the study, participants will receive a £20 gift voucher upon completion of the walk-along interview.

**Safeguarding and risk assessment.** Before conducting the walk-along interviews, safeguarding and risk assessment measures

will be finalised. These will include chaperone requirements for vulnerable participants, safety protocols such as recording interview start and end times and addressing equity issues such as language needs. Participants aged 16–18 or those identified as vulnerable will be accompanied by a companion who will remain present throughout the interview but will not participate in the research. The community co-ordinator will approve the walk-along interview routes, maintain a detailed log of participants and oversee the implementation of safeguarding protocols.

**Data management.** After the data is recorded, it will be securely stored on a NHS Trust approved, password-protected computer system, with pseudonyms used in place of real names to protect participant identity. The research data will only be accessible to authorised members of the research team involved in the study.

The collected data will be recorded and stored in several formats. Photographs and geo-locational data will be captured via a web-based tool, which will store responses in a secure online system accessible to the research team through a password-protected platform. Audio recordings from the walk-along interviews will be downloaded onto a secure computer system. These recordings will be transcribed by an approved transcription service, and the verbatim transcripts will be securely stored on a restricted-access server accessible only to the research team. Once the interview transcripts are completed, all audio recordings will be permanently deleted from both the audio recorders and the digital storage systems.

#### Data analysis

The four peer research groups and their respective community co-ordinators will attend individual workshops to facilitate the process of analysing the collected data, which may include written quotes, photographs, maps, audio recordings. Each group will collaborate with the research team to identify key points of discovery and determine how the data can be categorised and synthesised through thematic analysis. The research team will draw on expertise in qualitative data analysis (Ritchie & Spencer, 2002) to provide training and ongoing support throughout this process.

The analysis will follow a deductive approach, guided by the framework developed during the co-design phase, when peer researchers and community co-ordinators identified key community priorities and themes (Gale *et al.*, 2013). While this framework will serve as a guiding structure, it will remain flexible to incorporate any additional themes or insights that emerge from the data.

During the workshops, peer researchers and community co-ordinators will review the summaries of walk-along interview transcripts, survey responses and notable quotes to generate initial codes which will then be organised into thematic maps. These maps will illustrate relationships among codes and highlight three to five core priorities. Workshops will be audio-recorded to ensure peer researchers' insights are accurately captured.

Photographs taken from walk-along interviews will be analysed using the Photovoice SHOWED method (Wang & Burris, 1997). By selecting and interpreting images in relation to the identified priorities, peer researchers will enrich the thematic maps with visual context. Through this combined framework analysis, thematic mapping and photo analysis process, a participatory and contextually grounded understanding of the data will emerge. Each community organisation's data will be treated as a distinct entity, reflecting the unique priorities and findings of their specific area.

### Case study dissemination

The case study groups will be supported to create outputs from the work they have undertaken, and this will include creating blogs, short reports, PowerPoint presentations and infographics. The aim will be to reach a variety of audiences including local residents, councillors, schools and faith organisations to share the findings from their locally focussed research. The research team will support the creation of dissemination materials including presentations, briefing notes and manifestoes for change. At this stage each of the four groups of peer researchers will decide how to work together to create a formal report. Lead community organisations, through the community co-ordinator will support advocacy for change using the research outputs and will draw on the support of the peer researchers in getting this message to a variety of audiences. It is possible that each of the four community organisations will do this differently to each other.

### Work package 2: Evaluating community inclusive approaches

Using the case studies described in WP1, we will explore the barriers and enablers to co-production and peer research with seldom-heard communities. This evaluation will focus on identifying which features of the citizen science and co-production systems are useful, practical, and feasible through the co-evaluation of WP1 activities.

### Aims

The primary purpose of the evaluation is to develop a framework for the most appropriate and effective ways of working with communities when delivering co-produced research. We will use these insights to design the Centre for Co-production and Peer Research (CoPPeR) Network, which will embody all the values and principles outlined in the co-production strategy (Albert *et al.*, 2023; Islam *et al.*, 2022). The evaluation component of this project will focus on the following three questions:

1. To what extent were our co-production strategy values/principles achieved and what were barriers or enablers to enacting these values/principles?
2. Which elements and mechanisms of research through co-production methods were acceptable, feasible and impactful for our community organisations and which were not?
3. How did contextual factors (such as place, language, literacy skills) influence alignment with guiding principles, acceptability, feasibility and impact?

### Study design

We will employ a co-evaluation approach, collaborating with the community organisations to develop the expectations, objectives and impacts of the evaluation while promoting transparency and openness (Kieslinger *et al.*, 2022). The evaluation will run concurrently with work package 1, enabling real-time adaptations to the process (see Figure 3). Community organisations will be actively involved in delivering aspects of the evaluation and will receive relevant training and support on evaluation systems which will be delivered through workshop-based learning.

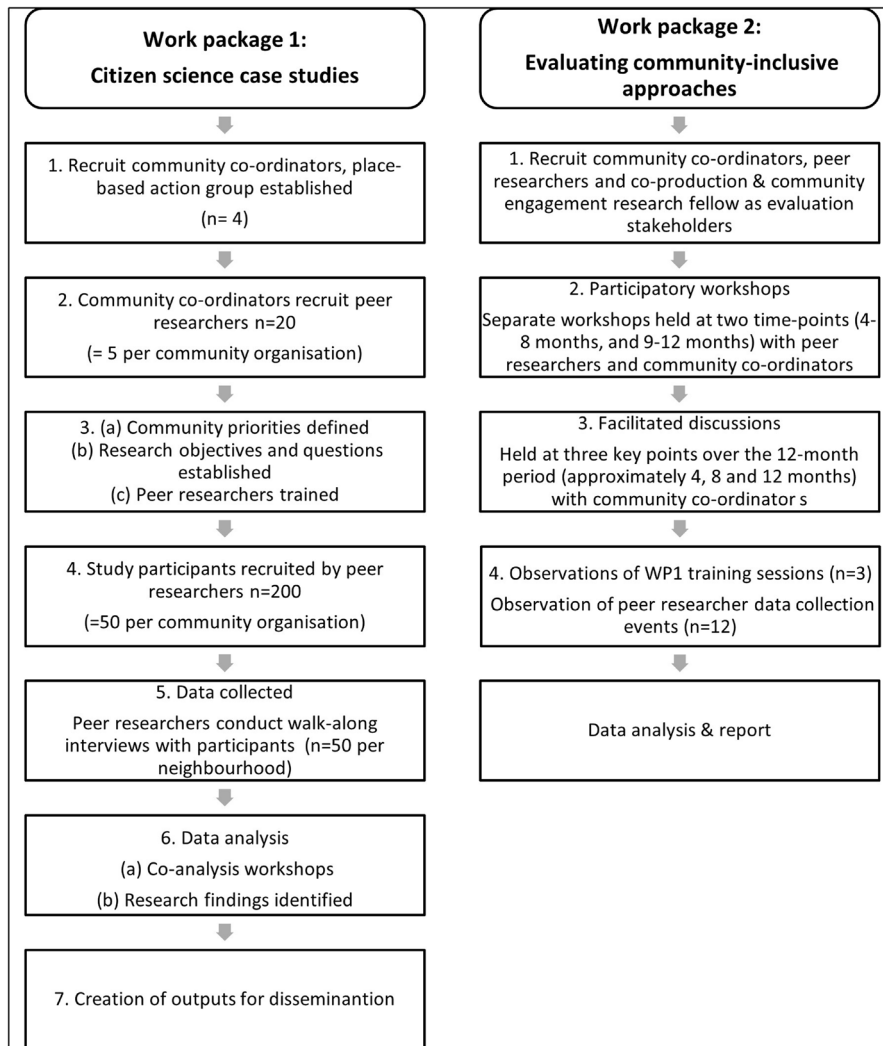
### Sampling and recruitment

The co-production and community engagement research fellow, all peer researchers and community co-ordinators will be invited to participate and contribute their knowledge to this part of the study as evaluation stakeholders. The BiB researcher will provide participant information sheets detailing the evaluation activities and consent forms will be completed prior to the commencement of evaluation sessions.

### Data collection methods

**Participatory workshops.** Separate workshops will be held at two time-points (4–8 months, and 9–12 months) within each community setting. Peer researchers and co-ordinators and co-production & community engagement research fellow will be invited to share their experiences of co-production activities. Ripple Effects Mapping (Nobles *et al.*, 2022) will be used to understand the broader impacts of co-production activities, including identifying what worked (in leading to impact) and what did not. Participants will be directed to map activities and impacts on a timeline and reflect on what has been most (and least) significant and why. A participatory activity will be used to explore participants' feelings about whether their experiences aligned with the guiding principles of co-production and to identify and discuss other factors that influenced their experience. Different coloured cards will represent positive, neutral or negative feelings and participants will place these cards at various points on a body outline depending on their view of the importance of the different principles in shaping their experience.

**Observations.** Observation provides an independent record of events and behaviours in real-time, within the context in which they occur (Morgan-Trimmer, 2015). A researcher will observe three peer research data collection events within each case study (n = 12 events) to capture how the research is implemented in accordance with the guiding principles of the co-production strategy (Albert *et al.*, 2023) across different contexts. A BiB researcher will also observe up to three training and support sessions delivered to the community organisations and peer researchers. Observations will be recorded through reflective notes related to the feasibility, acceptability and impact of co-producing research with diverse communities with community partners. These observation events will allow both researchers and peer researchers to reflect on their experiences. Observations will be documented through reflective notes focusing on the feasibility, acceptability and impact of co-producing research with diverse communities and community partners. The specific data collection events to be observed



**Figure 3. Key concurrent activities of WP1 & WP2.**

will be determined through consultation with peer researchers, based on the research methods agreed upon and adopted in WP1.

**Facilitated discussions.** Community co-ordinators and co-production & community engagement research fellow will convene a facilitated discussion at three key points over the 12-month period (approximately 4, 8 and 12 months) to engage in collective discussions. These discussions, facilitated by the researcher, will focus on identifying the barriers and enablers that partner organisations encountered in delivering the research (WP1), exploring any additional opportunities that participation has provided, and reviewing and reflecting on the ongoing findings emerging from the evaluation activities. Participants will also consider whether feasibility, acceptability and mechanisms of impact vary across the different contexts and,

if possible, will consider making changes to improve the research delivery described in WP1.

**Analysis**

Flexible and rapid qualitative analysis methods (Vindrola-Padros & Johnson, 2020) (Vindrola-Padros & Johnson, 2020) will be employed. Activities will be audio-recorded, and the data will be transcribed and coded following each data collection session, with researcher field notes providing additional context. Mind mapping techniques (Burgess-Allen & Owen-Smith, 2010) will be utilised during facilitated discussions to develop broad themes and actively involve participants in the analysis process. The data will be analysed thematically, focusing how well the activities in WP1 align with the nine guiding co-production principles, considering feasibility, acceptability, impact, and contextual influences. Additionally, there

will be flexibility to incorporate new and unexpected themes into the analysis, particularly through the mind-mapping exercises and facilitated discussions with community partners.

### Work package 3. Developing a sustainable model for CoPPeR network

In this work package, we will co-produce the key features of a successful CoPPeR network model that provides the necessary infrastructure to enable seldom-heard communities to become central partners in all aspects of the research process. To achieve this, we will focus on two key questions:

1. What does a sustainable model for co-production and peer research look like?
2. What resources will it require?

### Methods

We will utilise the appreciative inquiry ‘dream’ and ‘design’ stages (Cram, 2010; Ludema *et al.*, 2001) to collaborate with community organisations, peer researchers and stakeholders. This process will involve envisioning a positive future where community members and community organisations will work with researchers to draw out a vision for the CoPPeR network.

This will be operationalised through a workshop held with community organisations, peer researchers and wider stakeholders to reflect on learnings from work packages 1 and 2. We will commence the workshop with a small series of presentations outlining what we did and what we found and some key learning points from the community co-ordinators and peer researchers. Attendees will take into consideration the points presented and engage in the ‘dream’ stage of the Appreciative Inquiry by discussing what a successful CoPPeR model might look like by focusing on ‘what works well’ and ‘what could be improved’. The proceeding discussion, which will be facilitated by a member of the research team, will be recorded on flip-chart paper. The workshop will then transition to the ‘design’ stage where attendees will outline the systems, processes and investments needed to make the CoPPeR network a reality. Outputs from these interactive workshops will be transferred from the flip-chart notes into word and excel documents where we can categorise the proceedings in order of priority. The research team will translate the content and findings into a mission statement and operational guide for the CoPPeR network. This will essentially serve as a blueprint for the CoPPeR network.

### Work package 4: Sustainability and legacy

In this work package, we will focus on sharing insights with key statutory health and research partners to establish a sustainable foundation for the CoPPeR network through a series of targeted development activities.

Our co-production strategy (Albert *et al.*, 2023) has already garnered strategic commitment from local policy and decision makers with adoption of the strategic principles by Bradford Council, the West Yorkshire Health and Care Partnership, and Bradford’s NIHR Health Research Determinants

collaboration. Building on this commitment, we will engage with co-production leads from these organisations to explore how to operationalise and embed the CoPPeR model. This will involve assessing readiness, receptivity, barriers and facilitators at both tactical and operational levels. This approach aims to identify future actions to increase the absorptive capacity for co-production and demonstrate the value and utility of both the CoPPeR network and co-production methods to potential future funders.

### Ethical approval and consent

This study has been reviewed and approved by the Yorkshire and Humber Bradford Leeds Research Ethics Committee on 23 November 2023 (REC Reference 23/YH/0267). All research participants will provide written informed consent in accordance with our ethics protocol.

### Dissemination

We plan to produce a range of outputs from this study and disseminate them through various channels and formats. We will produce several peer-reviewed articles detailing our approach and insights gained. These publications are expected to attract interest from journals focusing on involvement and engagement. Equally, we also aim to contribute to the academic discourse on the evaluation of co-production approaches, addressing the current lack of literature in this area.

The findings from the citizen science and co-production approaches will be published in journals that focus on the built and natural environment (BNE). As these journals increasingly focus on community inclusive approaches, our findings will contribute to discussions on applying rigorous and appropriate methods in the development of housing projects, parks, landscape design and other relevant areas.

Local outputs from the research will include a report for each of the four hyper-local projects. These reports will be written in plain English and will be tailored for local decision-makers, including Councillors, Council Ward Officers, Wardens, Schools and the Police. The community co-ordinators will lead the production of these reports, with support from the research team and input from the peer researchers.

Peer researchers will receive training and support to design and deliver presentations aimed at driving change. The community co-ordinators will collaborate with them to co-produce presentation materials. We will organise opportunities for discussion and presentation of the findings in community venues, such as Open Space events. We aim to share our research insights at events designed for both academic and community audiences.

### Concluding remarks

Our ambitious plans to establish co-production partnerships through the CoPPeR network will be supported by the evidence generated from this project. We aim to identify ‘what works for which communities and why’ as well as ‘what approaches may encounter limited acceptance or readiness’. These findings which will be generated through this research will be instrumental in shaping the development of the CoPPeR network, guiding its

development based on the evaluation of the case studies and our experiences working with diverse communities. This approach will help us build capacity and foster commitment among the communities involved. The importance of participatory approaches is that they increase both legitimacy and the quality of decision-making. They achieve this by allowing the

people and communities most affected to shape the mission's success (Griffiths, 2024).

## Data availability

No data are associated with this article.

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# Open Peer Review

Current Peer Review Status: ? ✓ ?

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## Version 1

Reviewer Report 29 May 2025

<https://doi.org/10.3310/nihropenres.15090.r35219>

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**Michael John Norton** 

University College Cork, Cork, Ireland

Dear Authors

Many thanks for submitting this protocol for review by myself. I must admit, I thoroughly enjoyed reading this paper and I first of all would like to commend you for such an ambitious project that incorporates participatory co-design methodology. Please see attached minor amendments to improve readability of the paper.

1. I would review your abstract again as I was not sure upon reading it what kind of protocol it is. In fact, this is the biggest issue I had with this paper. Is it a study protocol or is it a co-design protocol? The more I read this paper, the more I sided with a study protocol but please make this explicitly clear for the reader both in the abstract and in-text.
2. In line with it being a protocol, you should not have a results or conclusion section in your abstract as you cannot report on these yet due to the study's infancy. Instead replace these headings and the text underneath them with Ethics and Dissemination and discuss these as the final section of the abstract.
3. If the key words are of equal value, please place in alphabetical order.
4. Please refrain from using e.g, i.e, or etc in academic writing.
5. In your methods, please make sure that all work packages descriptions are of equal length and detail so that the study can be replicated and also to demonstrate that each work package are of equal importance. This is particularly relevant for work packages 3 and 4 which has little detail attached to them.
6. In your methodology you are using a participatory approach, it would be of interest to note the theoretical orientation [ontology and epistemology] behind the project to ensure theoretical alignment of the philosophical positions to the methodology and finally the methods employed.

Once again, many thanks for submitting this protocol for review and I look forward to reading the resubmission.

**Is the rationale for, and objectives of, the study clearly described?**

Yes

**Is the study design appropriate for the research question?**

Yes

**Are sufficient details of the methods provided to allow replication by others?**

Partly

**Are the datasets clearly presented in a useable and accessible format?**

Not applicable

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Co-Production, Peer Support Work, Recovery, Mental Health, Qualitative Research, Evidence-Based Practice

**I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.**

Reviewer Report 08 May 2025

<https://doi.org/10.3310/nihropenres.15090.r35218>

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**Alison Branitsky** 

The University of Manchester, Manchester, UK

This protocol provides a thorough account of a co-production and peer research approach which aims to address health inequalities in seldom-heard communities through four co-produced workstreams. The protocol provides an excellent example of values-based co-production that moves far beyond rubber stamp collaboration and outlines a process for building enduring relationships with seldom-heard communities whilst providing members of these communities with adequate training and resources to become full research partners. The rationale for this research is clearly outlined, and is applicable to communities beyond Bradford. The sampling, recruitment, training, data collection/analysis and dissemination strategy for each work package is clearly defined and the creative and collaborative methods ensure contextual/cultural appropriateness. Overall, the methods are clearly replicable. The one area which may enhance replicability would be to include if there was any previous relationship between the central

research team and the communities/target populations included. It would be insightful to know how these communities were approached and if there were any concerns regarding power or trust that needed to be collaboratively resolved.

As a minor point, "BiB researcher" is introduced in the first instance in work package 1 in the "walk along interviews" subsection, but is not defined until the "developing interview and survey tools" subsection. It would be helpful to have this defined in the first instance. Additionally, there are several instances (e.g., work package 2, "observations" section) in which a task is delegated to a "researcher" and then later on a "BiB researcher." It would be helpful to clarify if the "researcher" in the first instance was indeed the same BiB researcher.

Overall, the authors are to be commended on such a thorough and methodologically rigorous protocol which centres the values of co-production and peer research throughout.

**Is the rationale for, and objectives of, the study clearly described?**

Yes

**Is the study design appropriate for the research question?**

Yes

**Are sufficient details of the methods provided to allow replication by others?**

Yes

**Are the datasets clearly presented in a useable and accessible format?**

Not applicable

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Patient and public involvement; co-production; clinical trial design; psychosis; trauma; voice hearing

**I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.**

Reviewer Report 07 May 2025

<https://doi.org/10.3310/nihropenres.15090.r35140>

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**Judith Eberhardt** 

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This is a well-designed and clearly written protocol that outlines a thoughtful and timely piece of

work. The project is grounded in the principles of co-production and peer research, and these are embedded throughout the design. The focus on communities that are often underrepresented in research, and the intention to build lasting research capacity through local partnerships, are both welcome and well justified.

The rationale is clearly set out. The authors make a convincing case for the value of inclusive, community-led approaches to health research, and the objectives follow logically from this. The study design is well matched to the aims. The combination of peer research and citizen science methods across four community-led case study sites allows for necessary flexibility, while maintaining coherence across the project as a whole. The attention to real-time evaluation and reflection is a particular strength.

The methods are described in detail. Recruitment, training, data collection, and co-analysis are all carefully planned, and the flexibility built into the approach is likely to support effective engagement with diverse groups. I particularly appreciated the consideration given to digital exclusion and accessibility. These details reflect the project's commitment to inclusion.

Although many challenges are thoughtfully anticipated, there are two areas where some additional clarification might strengthen the protocol. First, although the involvement of trusted community organisations is central to the recruitment strategy, it would be helpful to say a little more about how the project plans to address any difficulties in reaching or sustaining engagement with seldom-heard populations, should they arise. Although flexibility is rightly emphasised, a brief mention of any contingency strategies would be reassuring.

Second, while variation between sites is appropriate and expected, a short explanation of how learning will be synthesised across the different case studies would add to the protocol. Some indication of minimum documentation standards or reflective practices across sites would support the broader aim of building a scalable and transferable model.

The plain language summary is an important feature, but it is currently quite dense and written in a style that is closer to an academic abstract than a genuinely accessible summary. Given the emphasis on inclusivity and community engagement, it would be recommended to revise the plain language summary to ensure that it is straightforward, easy to follow, and accessible to a wide range of readers.

The CoPPeR network model is clearly a key legacy aim of the project. It would strengthen the protocol to add a little more detail about what plans are in place to sustain the network beyond the funded period, whether through institutional support, new partnerships, or other means.

These suggestions are intended to further strengthen what is already a very carefully considered and well-articulated project.

**Is the rationale for, and objectives of, the study clearly described?**

Yes

**Is the study design appropriate for the research question?**

Yes

**Are sufficient details of the methods provided to allow replication by others?**

Yes

**Are the datasets clearly presented in a useable and accessible format?**

Not applicable

**Competing Interests:** No competing interests were disclosed.

**Reviewer Expertise:** Health inequalities; ethnic minority health; preventative health behaviours; intervention development and evaluation; participatory research methods

**I confirm that I have read this submission and believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard, however I have significant reservations, as outlined above.**

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