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BMJ Open Quality

Role of coproduction in the sustainability of innovations in applied health and social care research: a scoping review

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ABSTRACT

Background Innovations such as toolkits and frameworks are developed through applied health and social care research, to address identified gaps in quality or safety of care. The intention is to subsequently implement these innovations into practice to bring about improvements. Challenges can arise from poor choice of implementation strategies or lack of alignment to local contexts. Research has identified the importance of involving and engaging patients, health professionals and other stakeholders in the design and delivery of the underpinning research, and in informing subsequent implementation. However, how and why such coproduction influences the sustainability of innovations in health and social care is unclear.

Objective The objective of this scoping review is to identify and present the available evidence regarding the role of coproduction in the sustainability of innovations in applied health and social care research.

Inclusion criteria This scoping review includes papers related to the role of coproduction in the sustainability of innovations in applied health and social care research published in peer-reviewed journals. The review is limited to articles reporting applied health and social care research conducted in the United Kingdom.

Methods Scopus, Web of Science, CINAHL and MEDLINE were searched for studies. Titles and abstracts were screened by two independent reviewers for assessment against the inclusion criteria, followed by a full-text review and data extraction. Data were extracted using a data extraction form developed by the reviewers. The completed forms were imported into NVivo and analysed using basic qualitative content analysis.

Results Our review provides insight into the role of coproduction in the sustainability of innovations in applied health and social care research. Our findings highlight that sustainability is a dynamic process, supported by coproduction activities such as ongoing collaborative partnerships; these can be planned for in both the research design and implementation phases of a project.

WHAT IS ALREADY KNOWN ON THIS TOPIC

⇒ Research has identified that the involvement of different stakeholders in research brings important views, perspectives and challenge that can improve the design and delivery of research and the implementation and sustainability of its outputs.

WHAT THIS STUDY ADDS

⇒ This is the first review to examine the role of coproduction in sustainability of innovations in applied health and social care research in the UK context. It shows that sustainability is an ongoing dynamic process, and that maintaining collaborative partnerships from project conception through to innovation implementation has a positive influence on sustainability of the innovation.

HOW THIS STUDY MIGHT AFFECT RESEARCH, PRACTICE OR POLICY

⇒ The review findings suggest that coproduction activities that have a positive influence on sustainability can be planned for in both the research design and implementation phases of a project.

INTRODUCTION

Rationale

Applied health and social care research aims to improve health outcomes through the provision of insights and evidence and the translation of research findings into products. These products, also known as innovations, can be guidance documents, toolkits, models or services and are implemented into practice with the aim of bringing about improvement. However, improvements in health and well-being will only be achieved if innovations are sustained over time.[1–3] The involvement of different stakeholders in research brings important views, perspectives and challenges that can improve the design and delivery of research and the implementation and sustainability of its outputs.[4–6]

INVOLVE, a national advisory group for patient and public involvement (PPI), has developed guidance, which is intended to provide greater clarity about what it means to coproduce research.[7] The guidance frames coproduction as distinct from existing understandings and practices of involvement and defines it in research as 'an approach in which

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researchers, practitioners and the public work together, sharing power and responsibility from the start to the end of a project, including the generation of knowledge' (6:4). INVOLVE's guidance includes five key principles of coproducing a research project, with sharing of power in key decisions a central tenet.[6]

Coproduction has been highlighted as a factor in promoting sustainability; for example, studies have reported that interventions are more likely to be sustained if tailored to the clinicians and setting concerned.[4 8] Lennox *et al*, in their systematic review of sustainability approaches in healthcare,[3] found stakeholder participation (such as champions, involvement of leaders, collaboration and patient involvement) to be a key construct across sustainability approaches. This echoes a recent systematic review[9] identifying 37 sustainability determinant factors, which were grouped into seven themes. The 'adopter' theme relates to involvement of various stakeholders, for example, staff and users, in a range of coproduction activities, for example, champions.[9]

However, despite such connections between coproduction and sustainability being highlighted, there is a lack of evidence about whether and how coproduction influences the sustainability of innovations in practice.[10 11] While various aspects of coproduction have been subjected to systematic reviews in the last 5 years, none has targeted the influence of coproduction activities on the postimplementation phase, that is, in supporting the sustainability of innovations.[12] Therefore, the scoping review approach was selected with the objective of identifying and presenting the available evidence regarding the role of coproduction in the sustainability of innovations in applied health and social care research.

A number of sources were drawn on to develop the review question and subquestions, including the population, concept, context (PCC) mnemonic[13]; background literature; researchers' experience and discussion with the study's two PPI partners, who have extensive experience in coproduction, and the project stakeholder, who is an expert in the adoption and spread of innovations in applied health and social care.

Review question

What is known from the existing literature about the role of coproduction in the sustainability of innovations in applied health and social care research and what are the research gaps in the current literature?

Subquestions

1. What methodological approaches have been used to explore the role of co-production in the sustainability of innovations?
2. Which types of stakeholders have been involved in coproduction, and how were they identified and engaged with?
3. What types of coproduction activities were involved?
4. What types of innovation are being coproduced?
5. In what health and social care contexts is coproduction taking place?
6. How has sustainability been assessed?

METHODS

Protocol and registration

The scoping review was conducted using the Joanna Briggs Institute methodology for scoping reviews[13] and reported according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR).[14] The database search took place in May–June 2023. The review protocol was published on the University of Leicester research repository, http://doi.org/10.25392/leicester.data.23515899

Eligibility criteria

To develop a clear study structure and create eligibility criteria to guide the selection of evidence sources that align with the review questions and subquestions, the PCC mnemonic[13] was used. We intentionally included only articles reporting applied health and social care research conducted in the United Kingdom, to keep the focus on learning within a specific context. There were no limitations for year of publication to allow for full coverage of the subject. The population was any stakeholders involved in applied health and social care research (eg, researchers, clinicians, patients, public). We searched for articles that provided empirical evidence for the role of coproduction in the sustainability of innovations in applied health and social care research, and those that evaluated, commented on or explored it, such as scoping reviews, systematic reviews and meta-analyses published in peer-reviewed journals. We excluded studies that did not include reference to both coproduction and sustainability. The review was limited by context to health and social care, including, but not limited to, primary, secondary and tertiary care, prison healthcare, care homes and public health in the public or private sector in the United Kingdom.

Information sources

The search strategy was developed in consultation with a research librarian. The search was undertaken across four databases, Scopus, Web of Science, CINAHL and MEDLINE; see online supplemental evidence file 1 for the search strategy.

Selection of sources of evidence

Following the search, all identified citations were collated and uploaded into EndNote V.20 (Clarivate Analytics, Pennsylvania) and duplicates were removed. The citation details were imported into Rayyan.[15] Two reviewers participated in a pilot screening process to ensure consistency. The pilot test involved screening 25 studies, followed by a discussion of the findings, which further clarified the eligibility criteria and identified any inconsistencies in screening approaches. All titles and abstracts were then screened against the eligibility criteria by the first reviewer,

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with 10% reviewed by the second reviewer to ensure consistency.[16] Any disagreements that arose between the reviewers were resolved through discussion between them; a third reviewer was involved on two occasions to make the final decision. The search was complemented by hand searches of the reference lists and citations of all included articles for additional studies. Google Scholar was used for the citation search.

Data charting process

Data were extracted using a data extraction form. The research team met regularly throughout the data extraction and analysis phases to discuss the process and any issues encountered.[17] The data extraction form was piloted by two members of the review team on three papers to ensure all relevant results were extracted. No modifications to the form were required.

Data analysis

The data extraction forms were imported into NVivo and analysed using basic qualitative content analysis.[16] Analysis involved a process of inductive open coding to answer the specified review questions. A sample of the data extraction forms was initially coded independently by CO. The codes were then allocated into overall categories, before a coding framework was developed.[18] The coding framework was reviewed by all members of the review team and then CO applied to the remaining evidence sources and updated as required to accommodate new understandings.[17]

Patient and public involvement

As part of an iterative process to gauge feedback as it was created, presentation and discussion of the scoping review protocol took place at team meetings. To validate emerging findings, they were presented for discussion at team meetings. PPI members were invited to all team meetings and, therefore participated in these processes.

RESULTS

A PRISMA-ScR[14] flow diagram of the scoping review results, with reasons for exclusions of full-text documents that did not meet the eligibility criteria, is provided in online supplemental evidence file 2. There were 107 records identified after duplicate removal; 77 of these were excluded during title and abstract screening, resulting in 30 undergoing full-text review, of which 24 were then excluded. One additional paper was identified during a hand search of references, resulting in a total of seven papers.

Identified papers (for a full description, see online supplemental file 3) were published between 2015 and 2021. All papers were peer-reviewed and reported studies undertaken in England. No papers identified had the primary objective of exploring the role of coproduction in the sustainability of innovations. All of the papers did, however, make reference to the coproduction *and* sustainability of an innovation. Two of the papers reported on the development, implementation and adoption of an innovation,[19 20] three evaluated the implementation of an innovation,[21–23] and two focused on experiences of those designing and implementing a co-produced innovation.[24 25]

The summary that follows describes how the identified papers address the review's question and sub-questions.

Study characteristics

Six of the papers were from health and social care contexts[20–25] and one paper reported coproduction activity that included participants from both the NHS and University settings.[19] The Guidance for Reporting Involvement of Patients and Public (GRIPP2) checklist,[26] designed to enhance the quality of PPI reporting, was published in 2017. One paper[20] was published prior to publication of this checklist. Of the six remaining, only one used the checklist.[19]

A subquestion of this review asked what methodological approaches have been used to explore the role of coproduction in the sustainability of innovations, but because this was not the primary objective of any of the included papers, we are not able to answer this directly. However, all papers did report the methods used for the work they had undertaken. Qualitative methods were used in the papers evaluating the implementation of an innovation[22] and reporting experiences of those designing and implementing a coproduced innovation.[24 25] One paper reporting the development, implementation and adoption of an innovation used mixed methods[19] and an evaluation paper used quantitative methods.[21] Two papers[20 23] reported on a specific form of coproduction, experience-based codesign (EBCD), a participatory action-research method for collaboratively improving healthcare services.[27] One of the two EBCD papers reported that they used an adapted EBCD model.[23]

Three papers reported a service as their innovation.[21 24 25] Other innovations were a tool for PPI contributors to receive feedback[19] and a Patient Priority Programme, which aimed to build capacity for evaluation of service transformation and increase PPI in research and evaluation by recruiting, training and embedding public advisors to be core project team members.[22] The product of the EBCD paper was a set of priorities for service improvement in early intervention services for young people with psychosis[18] and for the adapted EBCD model was a group clinic.[23]

The types of coproduction activities and how they took place are summarised in table 1. In the seven included papers, the stakeholders involved in coproduction activities were members of the public,[19–24] relevant staff roles, groups and stakeholder organisations.[19–25] Five papers reported how stakeholders were identified and engaged with. Two papers reported accessing stakeholders through established groups: one through a research steering group that oversaw

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Table 1 Co-production activities

Paper	Co-production activity	How co-production activity took place
Chopra *et al*[21]	Design and implementation of the service including finalising service outcome measures. Deciding the research question for the evaluation, choosing methods, agreeing plans for dissemination, development, writing and submission of the evaluation paper.	Research Steering Group
Davies *et al*[24]	Design and implementation of the service	Steering committee and face to face events that included a survey asking what activity they would like to do on what day, what time, and when were the barriers to physical activity.
Larkin *et al*[20]	Feedback groups to reach a consensus on service improvement priorities. Co-design event to develop plans for change. Event included videos from the patient experience to inform the development of plans for change.	Facilitated face-to-face events.
Russell-Westhead *et al*[23]	Involved patients and key organisational stakeholders to help co-design, evaluate and refine the model by identifying the key enablers for successful implementation. Patient involvement has been integral in the development, delivery and quality improvement. Patient representatives have been involved actively in contributing to grant submissions and publications.	Iterative co-design model Patient experience collected using a co-designed patient experience survey
Mathie *et al*[19]	PPI contributors were involved throughout: they initiated the idea for the study, designed, carried out data collection, data analysis and have been involved in disseminating throughout. Two of the PPI contributors were involved in writing this paper, making comments, making revisions and writing the lay summary. Co-designing the PPI feedback tools and in the co-produced 'Guidance for Researchers: PPI Feedback'	Co-design workshops and meetings
Saini *et al*[22]	Partner Priority Programme co-produced with NHS and Local Authority partners.	Not stated
	The research evaluation question was developed collaboratively with researchers, CLAHRC NWC partners, and public advisors. Reviewing any circulated documents and providing comments and feedback throughout the process. Planned analysis, co-author of the evaluation paper and has contributed to the interpretation of the results.	Meetings
Wilcock *et al*[25]	The programme discussed was developed following a co-production exercise led by mental health specialists and experts in community sport programme design and delivery.	Not stated
	A 3-month co-production exercise (including on match days) with male rugby league fans to ask why, when and where they might be willing to attend a mental health programme	Rugby matches, other activity not stated.

all research at the centre the study was evaluating[21] and the other through an established older people's local network.[24] In the study using EBCD, stakeholders were those who had been purposively selected to take part in the study,[19] and in the adapted EBCD paper, stakeholders were engaged through their clinic attendance.[23] In the remaining paper, stakeholders were engaged through attendance at rugby league matches.[25]

Post implementation, the innovation was reported as having been sustained for 1 year,[19 21 24] 18 months[20 22 25] and 11 years.[23] However, none specifically stated the methods used to assess sustainability. Rather, sustainability was evidenced by the number of people who accessed the

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service over time,[21 23 25] improvements made following implementation of the innovation[19 20 22] and that the service was still being delivered.[24]

Mechanisms related to coproduction considered to influence sustainability of the innovation

As stated, no studies had as their primary objective to explore the role of coproduction in the sustainability of innovations. In addition, none of the papers reported using an implementation framework. However, all papers highlighted mechanism/s of change related to coproduction that they considered had had a positive influence on sustainability of their innovation. While we are not able to independently verify these, and (as above) the study designs were not explicitly set up to address this, we briefly discuss these below. These mechanisms can be described as using an approach to coproduction that involved collaborative and partnership working, and ongoing stakeholder involvement from conception through to implementation of the innovation.

Collaborative and partnership working

Coproduction approaches that involved a collaborative and partnership-working approach were viewed as being beneficial in facilitating sustainability. In one paper, collaborative partnerships with stakeholders enabled ongoing monitoring of the service since inception and allowed for evaluative evidence accrued to strengthen processes for the second year of the service running.[21] In another paper, working collaboratively was considered to facilitate positive practical benefits, such as engaging with established networks, in this case older adults. Through collaborative partnerships, older adults were viewed as assets who understood local contexts and were in a position to reach people in their community. Valuing their views brought about feedback that ensured services were acceptable and appealing. In terms of sustainability, the involvement of older adults provided opportunities for them to be trained to deliver parts of the innovation. Upskilling older adults from the community was considered a more stable model that would promote the skills staying within the community and, therefore, sustain the service, rather than training being delivered by externally commissioned trainers.[24]

Involvement from conception to implementation

Alongside taking an approach of working collaboratively and in partnership with stakeholders, coproduction from conception of the project through to implementation was considered to be a mechanism supporting sustainability of the innovation in several papers.[19–23 25] Involvement of patients and key stakeholders from the outset informed the iterative design, implementation and improvement of the innovation, which directly informed the content and structure of the innovation and refinements that were made.[23 25] Tailoring the innovation in response to coproduction facilitated a sense of ownership of the design processes and ultimately the innovation, particularly with people who would be using the innovation in their practice. Accordingly, initial and continued involvement of local stakeholders, such as collaborators and champions, as well as strong high-level support, enabled ownership of the innovation once research teams were no longer driving its use, and promoted sustainability in the post implementation phase.[19 20]

DISCUSSION

This scoping review has identified what is known from the existing literature in the UK context about the role of coproduction in the sustainability of innovations in applied health and social care research, and what the research gaps are in the current literature. Coproduced and sustained innovations were evident across a range of healthcare specialities, but the papers we identified were predominantly in the field of mental health. In the seven papers included, there were varied approaches to the type of stakeholders involved, how stakeholders were identified and engaged, what type(s) of coproduction activity were involved, and how the activity took place.

The included studies provided important evidence about the potential mechanism(s) of change related to coproduction and sustainability of the innovation in their study. The finding that approaches involving collaborative partnerships had a positive influence on sustainability highlights the relational nature of innovation implementation and sustainability.[3 10 28 29] Furthermore, it reflects previous reviews that identified stakeholder participation (such as champions, leaders and patients), including partnership working and collaboration to be a key construct for sustainability approaches[3] and a key factor influencing sustainability of innovations post implementation.[10 30]

Alongside working collaboratively and in partnership with stakeholders, the involvement of coproduction from project conception through to implementation promoted ownership of the innovation once research teams were no longer driving its use. As found in Lennox *et al*'s[10] study, building lasting relationships provided a platform for continued engagement with and ongoing support for the innovation that promoted sustainability in the post implementation phase.

Sustainability has been viewed as an outcome to be reached at the end of implementation[31] and as an ongoing dynamic process.[10 32 33] Recently, Lennox *et al* (10:2) have argued that 'studying sustainability at the end of initial implementation phases fails to capture the recursive or reflexive character of sustainability as it does not take into account the learning and continuous adjustments that shape sustainability outcomes.' Accordingly, considering sustainability as a process reflects the findings of this review that collaborative coproduction from project conception through to implementation is an important component to promoting sustainability by providing recursive learning and opportunities for continuous adjustment over the course of a project.

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Research gaps

The review has identified a research gap, in that none of the seven papers identified had the primary objective of exploring the role of coproduction in the sustainability of innovations in health and social care. It is important that this research gap is addressed to understand the influence that actions and processes such as coproduction have on the recognised challenge of sustainability of innovations in the field of applied health and social care research.

STRENGTHS AND LIMITATIONS

A strength of this review is that it is the first to examine the role of coproduction in sustainability of innovations in applied health and social care research in the UK context. The review used an established methodological framework, which underpinned the systematic approach to the search and screening strategies.[13] Findings from this scoping review should be considered with the following limitations in mind. We intentionally only included peer-reviewed studies undertaken in the UK to keep the focus on learning within a specific context. We also limited included studies to health and social care contexts. We recognise that otherwise relevant studies undertaken outside of the UK and in different contexts (such as education) will have been excluded through our search strategy. As such, we acknowledge that our review findings may not be generalisable to applied research in other countries and/or contexts.

CONCLUSION

Sustainability of evidence-based interventions has been identified as one of the most critical gaps in implementation science. Hence, it is imperative to better understand the role of coproduction in the sustainability of innovations. Our review findings provide insights for researchers, clinicians and PPI partners. First, the scoping review identified what is known from the existing improvement research literature in the UK context about the role of coproduction in the sustainability of innovations in applied health and social care research. Our review findings identified that coproduction involving collaborative partnerships from project conception through to implementation of an innovation may have a positive impact on sustainability.

Second, this scoping review identified gaps in the existing literature. To advance understanding on the role of coproduction in sustainability of innovations, we recommend future studies specifically have the primary objective of exploring the role of coproduction in sustainability of innovations. The use of the GRIPP2 checklist designed to enhance the quality of PPI reporting could contribute towards strengthening this evidence base

Third, as in previous reviews, the findings of this scoping review highlight that sustainability is an ongoing dynamic process, which suggests that coproduction activities that have a positive influence on sustainability can be planned for in both the research design and implementation phases of a project.

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Contributors CO, CT and NA made substantial contributions to the conception and design of this study. CO led the collection, analysis and interpretation of the results and the writing of this review. NA acted as third reviewer and supported CO in drafting the article. JC acted as second reviewer. All authors read and approved the final manuscript. NA acts as guarantor.

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