



## Case Report

# Incorporating patient and public involvement (PPI) at the design stage of an early career physiotherapy researcher's funding application: A co-produced reflective case report

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## ARTICLE INFO

## Keywords:

Co-production  
Research design  
public involvement  
Reflective case study

## ABSTRACT

**Aim:** Patient and public involvement (PPI) in health and social care research is a requirement of nationally peer reviewed funders and the National Institute for Health Research (NIHR), including research grant applications. The United Kingdom Standards for Public Involvement (UKSPI) in research describes six standards, with associated reflective questions for researchers and organisations to improve PPI throughout the life cycle of their research. This case study aims to critically reflect upon the experience of 'working together', the second of the UKSPI, at the design stage of an early career physiotherapy researcher's NIHR research grant application.

**Methods:** The GRIPP2 Checklist guided the reporting of this reflective case study. The researcher and public advisory group (PAG) met on Zoom following the initial consultation to reflect upon the experience of 'working together' at the design stage of a grant application. Discussions were audio-recorded. The theoretical model of reflection was informed by Moon (2004) to facilitate the researcher in an iterative learning process utilising the UKSPI reflective questions in order to develop as a novice learner to a contextual learner. Additional prompting was guided by Socratic questions to encourage deeper discussion.

**Results:** The group reflection demonstrated differences between knowledge such as processes and procedures, and experiential knowledge that demonstrated meaning. This enabled the researcher to develop meaning, work with meaningful knowledge throughout the design of an NIHR grant application and therefore produce transformative knowledge. Discussions highlighted the role of feedback in building reciprocal relationships and establishing ethical processes of working together. Moon's (2004) reflective framework effectively guided the development of meaning utilising the UKSPI questions during the group reflection.

**Discussion and conclusion** Group reflection utilising the UKSPI provides a reflective process including PPI and researcher perspectives for early career researchers to develop and improve on the incorporation of PPI throughout the design of an NIHR grant application. Further research is needed to explore methods of gathering reciprocal feedback to develop a reflective approach to improve the experiences of working together at each stage of the research lifecycle.

**Public involvement** This reflective case study was developed in partnership with a PAG including three previous patients and one relative. The PAG were consulted at the design stage of the research grant application. All members shared the reflective process and production of this reflective case study. All PAG members reviewed the case study. Two PAG members (R.G, M.H) co-produced the plain English summary.

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## Plain English Summary.

### Aim.

It has been championed by the National Institute for Health and Care Research (NIHR) and others, that all research and applications for any Health and Social Care related funding in the United Kingdom (UK) should include the meaningful involvement of patients and members of the public to improve the relevance, quality and ethics of any research. This is referred to as patient and public involvement (or PPI). It is increasingly becoming a requirement by many funding organisations for there to be a genuine partnership with PPI representatives at all stages of research. The UK Standards for Public Involvement (UKSPI) highlight six standards for researchers and organisations to improve their involvement of public members throughout the research process, together with a set of questions for each of the standards to facilitate this thoughtful process.

This case study aims to think about Standard 2 “working together”, at the design stage of a grant application of an early career physiotherapy researcher.

### Methods.

A checklist called the GRIPP2 Checklist guided how this case study was reported. A public advisory group (PAG) was formed which included two members from the researcher’s previous project about intensive care unit delirium which these members had experience. The researcher approached the ICUsteps charity to add two more members which included a family member of a person who had experienced the condition. The members of the group included previous patients diagnosed with delirium in the intensive care unit (ICU) (3 males) and a relative of one of the previous ICU-delirium patients (1 female).

Two group meetings were organised. The first meeting agreed the purpose and role of the PAG as well as a discussion about the research question at the design stage of a research funding application. It was agreed that a second meeting be arranged to think about on the experience of working together. Meetings were on Zoom and recorded. This meant the researcher could be fully engaged in the discussions. The meeting was focussed on thinking about the second UKSPI standard; “working together” (Staley & Barron, 2019). This standard has five questions to be thought about and each was talked about. The researcher used Moon’s (2004) framework of thinking and extra questions designed to help encourage individuals’ thoughts and to help draw out reasoning of why members thought certain ways (Gradinger et al., 2015).

### Results.

Discussions revolved around the *knowledge* each member brought to the PPI sessions, their *experience* of the process, and how this developed *meaning* for themselves and the researcher. The process highlighted the experience-based knowledge of the PAG members and the learned knowledge of the researcher.

This enabled both the PAG members and the researcher to reflect on their different roles, to learn together, to improve their understanding of how their different experiences and knowledge can lead to more fruitful partnerships and shape the way research is carried out to benefit future patients. However, further research is needed to explore ways to encourage this process. This has led to an agreed goal of this group to develop a working together learning guide specific to each stage of the research process.

### Discussion and conclusions.

This case study showed how thinking together as a group can help develop a relationship between the researcher and the PAG and that this was important in developing confidence and shared goals in developing a research question at the design stage of a research funding application. Moon’s (2004) framework of thinking proved to be helpful and work for the different levels of knowledge and experience of an early career physiotherapy researcher and PAG members. A thoughtful group discussion thinking about the experience of working together helped all members to further understand this process to develop a unique research question and ways to continuously improve their partnership. More research is required to explore two-way methods for improving PPI in

research to develop our understanding and value that PPI can bring to the process and experience (for everyone) in designing research.

## 1. Introduction

The National Institute for Health and Care Research (NIHR) advocates patient and public involvement (PPI) in health and social care research (National Institute for Health Research (NIHR), 2021). This is in accordance with values such as improving the relevance and quality of research, ensuring health research is conducted ethically and demonstrates equality by considering not only the scientific perspective but also the public communities’ perspectives (National Institute for Health Research (NIHR), 2021; Gradinger et al., 2015). PPI is defined as, ‘research being carried out ‘with’ or ‘by’ members of the public rather than ‘to’, ‘about’ or ‘for’ them’ (National Institute for Health Research (NIHR), 2021). The premise of PPI is that “People-focused research in the NHS [National Health Service] simply cannot be delivered without the involvement of patients and the public” (Royal College of Physicians, 2016). This is in agreement with principle four of the Health Research Authority’s (HRA) UK Policy Framework for Health and Social Care Research (Health Research Authority, 2020a). Consequently, researchers and those in research training are increasingly required by funding bodies including the NIHR, to incorporate PPI throughout the lifecycle of research (National Institute for Health Research (NIHR), 2021). Moreover, it has been suggested that PPI at the early stages, such as the design stage of the research lifecycle, may enhance the impact and the relevance of health research (Sophie et al., 2007).

The United Kingdom (UK) Chief Scientific Advisor, Chief Medical Officer for the Department of Health and Social Care and Head of the NIHR, Professor Chris Whitty, explained that “Representativeness in public involvement matters - because of disparities in health generally and the difference between rural and urban population health needs. In health research we have prolonged longevity of our population but we now need to address issues of quality of life in clinical research and public involvement has a role in this. We need public as well as patient involvement, for informed good public health and for insights into patient experience. Public involvement needs to be evidence based, with appropriate evaluation built in” (National Institute for Health Research, 2017). However, uncertainty about evaluative methods of PPI have been identified resulting in poor reporting of PPI in research and confusion between terminology such as ‘impact’ and ‘evaluation’ (Ocloo & Matthews, 2016; Russell et al., 2020). Furthermore, efforts to evaluate PPI in similar ways to a complex intervention may be problematic and highlights what some consider to be a misunderstanding of PPI in health and social care research (Edelman & Barron, 2016). Therefore, it is a current priority to develop meaningful and appropriate methods for improving PPI in research (Russell et al., 2020; Staley & Barron, 2019).

The UK Standards for Public Involvement (UKSPI) provide guidance for researchers and organisations on how to incorporate PPI into their research (National Institute for Health Research (NIHR), 2019). These include reflective questions for each of the six standards to encourage reflection in order to facilitate a process of continuous improvement. Although, these are described to encourage researchers and organisations themselves to reflect upon PPI in their research without reference to including PPI members in this process. However, a recent retrospective evaluation of PI in a multinational clinical study used the UKSPI as a reflective tool to improve PI in their research (Seddon et al., 2021). The authors found that the UKSPI were useful benchmarks of reflection for improving PPI in their research.

In 2018 the Centre for Research in Public Health and Community Care (CRIPACC) provided guidance for researchers on methods of feedback for PPI (Centre for Research, 2018). This includes making time to have debriefing discussions between researchers and PPI representatives. However, there is an absence of guidance for conducting reciprocal reflection between researchers and PPI members. Evidence suggests that feedback between the researchers and public members has

been associated with improved PPI, researchers' reflection of PI within their research and establishing mutual relationships (Joanna et al., 2016; Mathie et al., 2018; Russell et al., 2020; Wilson et al., 2018). However, research is limited by the quality of reporting of PPI in research and the diverse methods utilised. (Brett et al., 2014; Greenhalgh et al., 2019; Mockford et al., 2012). Therefore, it is anticipated this case study will contribute towards the evidence concerning meaningful methods of improvement for PPI at the design stage of health and social care research by utilising reflective methods.

In 2020, the corresponding author (JB) commenced an NIHR Pre-doctoral Clinical Academic Fellowship (PCAF) in the area of physiotherapy, critical care and ICU-delirium. Within her training objectives she had included learning about incorporating PPI in health research and applying her learning at the design stage of a subsequent NIHR clinical doctorate grant application (second attempt submitted June 2022). This included formulating the design of a research question in consultation with a public advisory group (PAG) with experience of ICU-delirium and advice from the NIHR Research Design Service (RDS). The term consultation is defined by the NIHR as 'asking members of the public for their views and using these in decision making'. (National Institute for Health Research (NIHR), 2021).

**Aim:** The aim of this co-produced case study is to critically reflect upon the experience of incorporating the second of the UKSPI, 'working together', at the design stage of an early career physiotherapy researcher's NIHR doctoral research grant application.

## 2. Methods

The GRIPP2 Checklist guided the reporting of this reflective case study (Staniszewska et al., 2017). The NIHR briefing notes for researchers was used to guide the definitions of methods in working with public representatives (National Institute for Health Research (NIHR), 2021). Co-production is described as 'an approach in which researchers, practitioners and the public work together, sharing power and responsibility from the start to the end of the project, including the generation of knowledge.' The knowledge developed for, and completion of, this reflective study has been shared between the PAG members and the physiotherapy researcher according to each members strengths and agreed roles.

### 2.1. Model of reflection

A number of reflective models have been used to apply learning of PPI activities in research and physiotherapy education (Dawes, Barron, & Lee, 2022). A systematic review synthesised 29 included studies concerning reflection and reflective practice in health professional's education (Mann et al., 2009). Findings were critically evaluated according to seven models of reflection. The results showed Moon's (2004) model of reflection was associated with quality of learning and facilitated a deeper learning process (Moon, 1999, 2004).

Moon's (2004) model is described to guide the iterative stages of learning with respect to factual knowledge, experiential knowledge and applied meaningful knowledge to facilitate the process of superficial to deep learning in order to develop new learning. For example, Moon (2005) suggested "in order to think critically, knowledge cannot be understood as mere facts but instead should be understood and constructed in relation to it's context" (Moon, 2005). Moon's (2004) model of reflective learning is commonly integrated in UK nursing and physiotherapy curricula. Furthermore, the early career researcher had minimal experience of consulting public members on a novel physiotherapy research question and the PAG members had no previous experience with reflective learning activities. Therefore, the early career researcher felt Moon's (2004) reflective framework would suit the different levels of knowledge and experience of the group, in order to meaningfully build a working-partnership and mutual learning process.

The methods of this case study are structured according to a

description of three main PPI activities: 2.2) Formulating the PAG 2.3) The initial consultation and 2.4) Group reflection).

### 2.2. Formulating the PAG

Previously, the early career researcher (JB) as part of her PCAF, had formulated a PAG for a qualitative project concerning ICU-delirium. The PAG included four members who had experienced ICU-delirium. The research question for the doctoral grant application built upon the qualitative research project. Two PAG members demonstrated interest to continue working together on the doctoral research question. These members had been recruited with support from the ICUsteps UK charity and were previous patients. The researcher advertised through ICUsteps for an additional two members which included a relative of a patient who had experienced ICU-delirium. This process was discussed and supported by the NIHR RDS. The researcher organised the consultation via email to determine the most suitable method and date for all members to meet. All members agreed Zoom, a virtual platform, was the most preferable method. In order to ensure all members could attend, the researcher organised two meetings at different agreed times on April 22, 2021.

### 2.3. The initial consultation

One of the new PAG members opened the meeting with introductions. This was followed by the researcher highlighting: the reason for meeting; the role of PAG members as PPI consultees and the role of the researcher to communicate the scientific perspective (National Institute for Health Research (NIHR), 2021). Following mutual verbal agreement of the purpose and roles in working together, the researcher described the process of developing the doctoral research question, introduced the background to the question and it's potential significance to build on the current evidence and impact upon patients. The research question was discussed in depth where the researcher and the PAG members considered details of the feedback, concerns and made suggestions to improve the research design. For example, members of the group discussed their preference for including the shorter European Quality of Life Five Dimension Five Level Scale (EQ-5D-5L) as an additional outcome measure of quality of life for participants who may find the longer and more comprehensive, Short Form 36 Health Survey Questionnaire (SF 36), cognitively burdensome (Contopoulos-Ioannidis et al., 2009; Herdman et al., 2011). This was based upon four of the PAG members (previous patients) personal experiences of being administered both questionnaires following their ICU discharge. Prior to closing the meeting, the researcher summarised: the comments and feedback from the group; the questions the group felt needed further investigation and that emailing the group describing how their feedback had been addressed within the grant application was the most suitable method. All PAG members decided to meet in two weeks to critically reflect upon the initial consultation in order to provide input into this reflective case study. On mutual agreement, the meeting was closed.

### 2.4. The group reflection

The group reflection took place on Zoom. All members agreed to the meeting being audio-recorded. It was felt that this would allow the researcher to be fully immersed in the discussion without the need to take extensive notes.

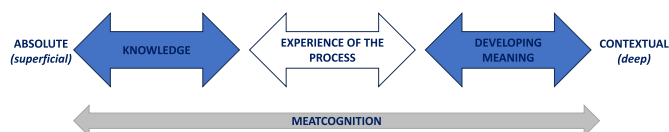


Fig. 1. Moon's (2004) model of reflection.

In relation to knowledge, experiences and developing meaning described in Moon’s (2004) framework (Fig. 1), the present reflections focussed on ‘working together’, the second standard for the UKSPI (National Institute for Health Research (NIHR), 2019; Moon, 2004).

The second standard includes five reflective questions (see Table 1) to help researchers reflect in order to improve their incorporation of PPI in research (National Institute for Health Research (NIHR), 2019). Moon’s (2004) model guided reflection upon the development of the groups learning process. The five questions relating to the second UKSPI, facilitated reflective group discussion specific to PPI and working together.

The early career researcher used additional prompting in order to explore the five questions in depth. Prompts were guided by the Socratic questioning ‘PAPER CLIP’ technique (Oyler & Romanelli, 2014). See Fig. 2 for details. This aims to facilitate metacognition (i.e. the critique of one’s own thoughts) (Paul & Elder, 2007). The PAPER CLIP technique relates to questions concerning Precision, Accuracy, Perspective, Equity, Relevance, Complexity, Logic, Importance, Perspicuity. For example, a question relating to precision was ‘can you give an example of how you felt your ideas were recognised?’.

### 3. Results

The results from the group reflections on the experience of consulting and working together at the early design stage will be presented according to Moon’s (2004) reflective learning processes; namely: knowledge, experiences of the process and developing meaning (National Institute for Health Research (NIHR), 2019; Moon, 2004).

#### 3.1. Knowledge of working together

On commencing the second meeting to reflect on the process together, one of the PAG members suggested that everyone share their journeys into being involved in health research. This resulted in outlining their experiential knowledge they had developed overtime and how their values influenced their motivation to build on their ability to contribute to developing knowledge. Each member relayed their experience as a patient (3 male members), relative (1 female) or clinician (female researcher). PAG member’s experience as public representatives in research ranged from one to 10 years. Interestingly, all members explained their involvement was because of a need they had identified through their experiences such as poor quality of life and support following hospital discharge. Additional values expressed were the desire to give something back, contribute towards progress and protect the purpose of health research e.g., relevance to those in receipt of it. On reflection it was highlighted that all PAG members had learnt about the role of PPI through their involvement in health research and consequently had developed strong values. This may support the NIHR recommendations to ensure a clear understanding of the roles in working together in health research because of the potential diversity of learned knowledge, experience and values (National Institute for Health

**Table 1**  
The UKSPI second standard: working together.

Question	The UKSPI second standard, reflective questions (National Institute for Health Research (NIHR), 2019)
1	Has the purpose of public involvement been jointly defined and recorded?
2	Have the practical requirements and arrangements for working together been addressed?
3	Have all the potential different ways of working together been explored, and have these plans and activities been developed together?
4	Is there a shared understanding of roles, responsibilities and expectations of public involvement?
5	Have individuals’ influence, ideas and contributions’ been recognised and addressed?

Research (NIHR), 2021).

Two PAG members described knowledge of their roles as protective [of research]. The remaining PAG members demonstrated agreement. For example, “... [responsibility of] ensuring the benefits of the research outweighs the risks to future patients/participants” as well as the “effective use of public money” and ensuring research has an “appropriate impact”. This was in contrast to the researcher who had learnt PPI terminology and factual knowledge of the different roles of PPI through the NIHR guidelines, NIHR briefing notes for researchers and NIHR online training (National Institute for Health Research (NIHR), 2021; National Institute for Health Research (NIHR), 2019). This demonstrated a two-way approach to learning and developing knowledge of working together (Staley & Barron, 2019). For example, the researcher’s knowledge and the PAG members’ experiential knowledge ensured agreement of roles in working together was prioritised. Furthermore, the PAG members’ descriptions using their experiences, enabled the researcher to identify discrepancies in the PAG members’ knowledge potentially due to inconsistencies in researcher practice in working with public members despite the NIHR guidance (National Institute for Health Research (NIHR), 2021). For example, a PAG member commented: “it’s interesting you took the line to send the confidentiality agreement out .... We’ve not found that to be the case in all the projects we’ve been involved with ... we’ll talk about things in general terms but we won’t be specific about particular people, about particular projects that we work with.”

In contrast, another explained, “I’ve had a couple of them [confidentiality agreements] ... um I think it depends kind of on the researcher. I’ve certainly not had any from international ones which I would’ve thought would’ve been more um want to keep things suppressed but it seems a very researcher dependant um thing.” Consequently, the researcher’s knowledge according to the NIHR guidelines ensured a clear understanding of appropriate ethical processes such as the confidentiality agreement for working together according to good practice (National Institute for Health Research (NIHR), 2021; National Institute for Health Research (NIHR), 2019).

On reflection of the second standard of the UKSPI, the group reflection developed deeper meaning behind the researcher’s knowledge that helped inform her absolute (factual) knowledge concerning PPI. Moreover, discrepancies of knowledge developed from the PAG member’s diverse experience of other researcher’s practice were identified and subsequently clarified.

#### 3.2. The experience of the process of working together

Due to the coronavirus disease (COVID-19), social distancing measures restricted in-person meetings (Pandya-Wood & Barron, 2017). Interestingly the PAG members felt virtual meetings were the most preferable method due to the in-expense of time and cost. Furthermore, in comparing modes of communication for working together, a PAG member reported “our last meeting [on Zoom discussing the research question] was particularly helpful to hear the details about what the research would actually look like so we can picture it ... tease out the nitty gritty and get a mental picture of what is actually planned”. This may demonstrate the inter-related nature of the UKSPI e.g., communication and working together.

Reflecting on the experience of working together seemed to develop perspective and an understanding of the vulnerabilities of working together. For example, the researcher described how she felt following the initial consultation, “working with yourselves and how you speak about your experiences actually is incredibly vulnerable, helpful ... and challenged me to look at my own critical process of how I learn .... how I communicate so, for me it [working together] really changed my practice [e.g. providing regular relevant feedback specific to the PAG members regarding their suggestions] ...”

This led to a discussion about feeling valued in working together by demonstrating active consideration of views expressed. For example,



Questions of Precision	Can you be more specific?
Questions of Accuracy	How could we test that?
Questions of Perspective	Is there another point of view we could examine?
Questions of Equity	What conflicts of interest exist here?
Questions of Relevance	How does this relate to the problem?
Questions of Complexity	What makes this a difficult question to answer?
Questions of Logic	Does this all make sense together?
Questions of Importance	What is the most important issue on which to focus?
Questions of Perspicuity	What do you mean?

Fig. 2. The PAPERCLIP technique (Oyler & Romanelli, 2014).

one PAG member described how feedback demonstrates the researcher's value of their time, "I actually saw the changes suggested in the updated drafts [JB circulated] ... and that for me spoke volumes, you know, you're prepared to listen and you're prepared to rewrite and redraft and that's good, that's fine."

One PAG member described how working together had been a flexible process [i.e. open discussion], "... this is the way it has to be. If it was rigid, there would be no point of anyone being involved ... otherwise we're just a tick in a box you've involved but not really".

For example, the PAG members described their value demonstrated an almost parental role in working together, "steering the researcher in the right direction". Another described their role as a "mentor to researchers".

"This [working together], felt like a path to find the right thing, the right direction ... what's the right angle to come at it", "... the process we used was a sort of back and forth process."

This led to a discussion in the group about the importance of diversity and inclusion to explore multiple ways of thinking and conducting research. One PAG member stated that, "researchers benefit from a broad range of perspectives and experiences" and "... me being white British, it's easy to think white British but at the end of the day, we're in an international country."

Other members described their sense of responsibility to talk to others about their involvement to improve inclusivity, "yes we talk about it without specifics (in order) to share what it is we do."

### 3.3. Developing meaning of working together

Reflecting upon working together at the design stage of a research question led to deeper learning for the researcher and developed a partnership throughout the learning process guided by an agreed purpose (meaning). For example, it was clear the researcher understood the absolute (factual) knowledge needed to initiate the process of incorporating PPI such as, defining member roles, the mode of meeting and issuing a confidentiality agreement. However, PAG members showed their experience of involvement had developed their values for their involvement and understanding of their roles e.g. ensuring the "effective use of public money". Moon (2004) describes the learning and development of meaningful knowledge as an iterative process (see Fig. 1) (Moon, 2004).

The group reflection of the experience of working together demonstrated this iterative process between knowledge and experiential knowledge and therefore, developing meaning. For example, the group reflection using the UKSPI questions identified the importance of feedback for sustained involvement of PPI members, "If my opinion is not being heard, I'll just stop being involved ... you'd know. My time is valuable to me so I'm not going to sit and let it be wasted ... I'm not going to be a tick box or a puppet". Furthermore, the reflection highlighted the role of reciprocal relationships in working together. For example, from their experiences, the PAG members described their value for collaboration of all perspectives and purpose for working together, "steering the researcher in the right direction" as well as listening to the researcher, "it doesn't mean you'll [researcher] always do that ... you'll have your counter arguments and that's good, we've [PAG] got to listen as well".

Group reflection identified the value for recognition i.e. feedback, inclusivity and authentic collaboration of public and scientific perspectives in order to develop an agreed purpose for working together. This helped the researcher to prioritise feedback as an important tool to sustain PPI in health research and in future improve upon the groups' diversity e.g., within the grant application Gantt chart. Therefore, group reflection highlighted priorities for the researcher to support their continuous improvement of PPI at the design stage of a research grant application.

## 4. Discussion and conclusions

The UKSPI were developed with the involvement of public members, organisations, funding bodies and researchers (National Institute for Health Research (NIHR), 2019). These guidelines suggest the purpose of the standards is to guide researchers or organisations in incorporating PPI in their research. Furthermore, they are meant to facilitate continuous reflective learning for researchers and organisations to improve upon. Evidence suggests shared reflection is more effective as it involves diverse perspectives, multiple sources of feedback and prevents single loop learning e.g., self-validation (Mann et al., 2009). This case study demonstrates group reflection as a potential improvement method of PPI at the design stage of a research grant application.

Group reflection highlighted the role of feedback in establishing reciprocal relationships and how this developed a process of the researcher's reflective learning and value of incorporating PPI at the beginning stages of a grant application. A previous study evaluated how embedded PPI was in six areas of health research (Wilson et al., 2018). This included three stages of scoping the evidence, collecting data via online surveys and case study analysis of interviews. Findings suggested effective PPI was established by six actions. These comprised of, a key individual leading PPI, mutual understanding of the moral and methodological purpose, diversity, a research team positive about PPI, relationships established and maintained over time and PPI evaluated proactively using a systematic approach. This case study demonstrated the value of feedback led by an individual (the researcher) to establish relationships and sustain PPI. For example, PAG members described receiving feedback from researchers impacted upon how valued they felt, their relationship with the researcher and their decision to continue in their involvement. A mixed-methods study carried out surveys and semi-structured interviews (Mathie et al., 2018). Findings suggested feedback was an important tool to generate effective reciprocal relationships and demonstrate value of public member involvement, but this remains uncommon. Furthermore, the results showed there was no single method used for providing feedback to public members. The survey response rate was low for PPI (30%) and researchers (12%). A qualitative interview study included 38 public contributors involved in health research (Joanna et al., 2016). The study explored the perceived impact of PPI in research, how and if impact should be measured. Results suggested provision of individual feedback was an important tool for assessing impact and sustaining involvement. A systematic review identified 65 frameworks for supporting PPI in research (Greenhalgh et al., 2019). The authors found application of these for reporting PPI in research and a 'one-size fits all approach' were limited. This is because the groups who developed the frameworks were found to be the main

users of the frameworks they had developed. Therefore, the systematic review suggested that researchers use the available frameworks and evidence as tools to design their own framework suited to their research context.

It has been suggested that a mutual learning approach may help to improve ideas, help researchers to make better decisions and problem-solve (Edelman & Barron, 2016). Therefore, without group reflection and public member feedback, the researcher's individual reflections upon how to improve PPI in their research in relation to the UKSPI are likely to be limited (National Institute for Health Research (NIHR), 2019; Mann et al., 2009). Furthermore, group reflection including reciprocal feedback in the learning process for the researcher and PAG members developed meaningful knowledge in working together. For example, provision of feedback from the PAG members demonstrated inconsistent adoption of ethical standards by the research community. Therefore shared reflection and feedback may develop an agreed understanding for maintaining an ethical approach such as the confidentiality agreement at the start of the research process (Pandya-Wood & Barron, 2017). Recent findings of using the UKSPI as reflective benchmarks has shown this to be the case in interventional research (Seddon et al., 2021). A mutual approach to feedback and group reflective learning may improve the consistency of how researchers work with members of the public and the experience of PPI in health research.

Professor Chris Whitty suggested evaluating PPI in health research is a priority, however, evidence reporting improvement methods of PPI in research is limited (Greenhalgh et al., 2019; National Institute for Health Research, 2017; Staniszewska et al., 2017). This case study suggests group reflection of the UKSPI is an effective method for improving PPI and encourages a continuous reflective learning process. Group reflection of the discussed activities has led to further development of knowledge i.e. the researcher and PAG members have together incorporated the objective within the researcher's NIHR grant application to develop this work into a potential reflective guide. The agreed objective includes the development of an anonymised 'working together' feedback questionnaire that will be used at set time points of the research process. This has been incorporated into the award timeline. The results of the questionnaire will be discussed and reflected upon as a group at each stage of the research lifecycle. This will enable the group to formulate a resourceful working together reflective learning guide specific to each stage of the research process in order to improve their partnership over the course of the award.

This case study demonstrates the second standard of the UKSPI reflective questions facilitated productive group reflection at the design stage of an NIHR grant application. Findings suggest shared reflection of multiple perspectives from the key individuals i.e. the researcher and PAG members, is effective to establish the purpose, practicalities, methods, shared understanding of roles, responsibilities and expectations as well as recognition of ideas and values for working together. Furthermore, the group reflection helped the researcher to identify meaningful priorities to improve PPI at the design of their grant application. Moon's (2004) reflective framework alongside Socratic prompts facilitated an effective process of reflection upon working together in relation to the five UKSPI reflective questions.<sup>[11,24,28]</sup> These guided an iterative learning process of the different knowledge and experience between the PAG members and the researcher in order to develop meaningful knowledge and partnership working. Future research is needed to explore shared approaches to improving PPI according to the stages of the research life cycle, research context and according to each of the remaining UKSPI.

## 5. Reflections/critical perspectives

The nature of reflecting on 'working together' where the researcher facilitated the group reflective activity may have elicited social desirability bias (Althubaiti, 2016). However, co-production of this case study (see PPI subheading below) may have minimised bias. In future,

using an anonymised questionnaire format to collect reflective data in order to facilitate the group reflection may further minimise bias of outcomes (Althubaiti, 2016). Moon's (2004) framework of reflection provided a useful method for exploring and visualising the process of reflection. However, the UKSPI questions alongside Socratic probing questions provided additional structure for novice reflective learners. This may suggest Moon's model alone may not provide sufficient structure to facilitate the depth of reflection for novice learners. A previous study used the UKSPI as a reflective framework itself (Seddon et al., 2021). In future, this may be worth exploring and comparing with the experience of using Moon's (2004) model of reflection. Furthermore, carryout the group discussion virtually may have impacted upon the depth of discussion and response to reflective questions. An in-person group reflection using the Moon (2004) reflective framework alongside Socratic probing questions may make an interesting method of comparison to explore this further. Due to the COVID-19 restrictions on in-person meetings at the time, public members without internet access would not have been able to participate. Therefore, it is important for the reader to consider that the views expressed in the group reflection may not be fully representative.

## Ethical approval

Ethical approval was not required as per the HRA guidelines (Health Research Authority, 2020b). All members agreed to the use of quotations.

## Author contributions

The authors' contributions and order of authorship is in accordance with the International Committee of Medical Journal Editors recommendations (International Committee of Medical Journal editors, 2019). JB: conceptualisation, methodology, reflective models, formal analysis, co-production of knowledge, writing – original draft, visualisation; RG: co-production of knowledge, formal analysis, validation, Plain English Summary, writing – review and editing; MH: co-production of knowledge, formal analysis, validation, Plain English Summary, writing – review and editing; IT: co-production of knowledge, validation, writing -review and editing; CT: co-production of knowledge, validation, writing -review and editing; DB: writing – review and editing, supervision. All authors contributed to the completion and approval of the final manuscript.

## Public involvement

This reflective case study was developed in partnership with a PAG including three previous ICU-delirium patients and one relative. The PAG were consulted at the design stage of the research grant application. The input and conduct of the reflective activity was shared across all members. The process of producing the reflective piece was shared across all members according to agreed roles. All PAG members reviewed this case study. Two PAG members (R.G, M.H) wrote the Plain English Summary using the abstract drafted by J.B and reviewed with amendments by the PAG.

The fellowship does not include costs for PPI therefore the researcher (JB) independently raised £160 to cover PAG members time and internet costs as per NIHR guidelines. The remaining costs were donated to the ICUsteps Charity.

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Funding Acknowledgements

This reflective case study is independent research supported by the National Institute for Health and Care Research HEE/NIHR ICA Programme Pre-doctoral Clinical Academic Fellowship, NIHR301174. The views expressed in this publication are those of the authors and not necessarily those of the NHS, the National Institute for Health and Care Research or the Department of Health and Social Care.

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