Reviewer’s report

Title: Patient and Public Involvement in designing and conducting doctoral research: the Whys and the Hows

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Reviewer: Fran Sherret

Reviewer's report:

This is an interesting article and sheds light on the experiences of four doctoral students in involving patients and public in their research. The paper provides an overview of key stages that PPI can be incorporated into doctoral research projects, there were a few points I felt could have been addressed further though to strengthen the paper a little more. Please find my suggestions below:

1. PPI stops at validating the findings here but we know that PPI can be usefully incorporated in dissemination, such as paper writing or developing ideas for dissemination strategies. I wondered whether the authors had considered this as PPI reps weren't co-authors on the paper and there wasn't really mention of dissemination - this might be interesting to pick up on, whether it's a limitation of the work and if so why it was omitted - it may be worth mentioning though and perhaps drawing on some literature if you've no experience of this personally.

2. I also wondered about the generalisation of the PPI work you'd all done. I got the idea from the results that it may have involved older patients with long term conditions but was a bit unclear - would be interesting to have a little for context for each study. If it's quite select PPI characteristics, that's fine but worth mentioning perhaps in the limitations for example - would these approaches still be appropriate for PPI with young people? I think you do talk about this generally e.g. 'pg 20 - difficult to involve a diverse range of people in PPI' but not in the context of the work that you've done, so I think more detail in terms of your experiences of who you recruited would be good and whether you saw a bias.

3. You talk in the discussion about the brief evaluations you did with PPI reps and question their usefulness but don't provide specifics as to why you question them? One thing that's missing from the paper is the PPI reps views on how you engaged with them? This would be useful to pick up on but if you don't have their feedback, perhaps mentioned in discussion that these are recommendations on your experience as researchers and that further work might be needed to ensure that these recommendations are appropriate are supported by their experiences too - this is one argument to include them in the paper authorship but appreciate this might be too late to do, so worth mentioning at least. For example, you talk about not having a long standing relationship with PPI reps as a disadvantage in the discussion and in the tables - but is it a disadvantage - to whom? Are PPI reps bothered by this? I was unclear.
A few minor comments:

Title
Patient and Public Involvement in designing and developing doctoral research: the Whys and the Hows … Maybe you could rephrase to 'designing and conducting'.

Plain English Summary
- 'PPI is not a requirement of the award' This is typical but some awards may advocate it - maybe worth saying 'not usually a requirement'

Background
- Pg4 'within the community to improve practices' - do you mean PPI practices or more general?

Defining and refining research questions with PPI
- Pg6 'not known' typo - think it should be 'know'
- Pg6 'KM arranged to attend one of the group's regular meetings...' It would be great in this section to know how you all introduced PPI to the representatives? I think this would provide a lot of insight for students, especially as PPI could be a tricky concept to communicate to those who aren't familiar with research.

Forming a patient advisory group
- Pg8 'A flyer was developed to facilitate recruitment' - study recruitment or PPI?

Using an online patient panel
- Pg11 'No reimbursement was required to panel members in this instance' A few times in the paper, including in the subsequent tables you suggest that if the PPI rep doesn't have to travel to an event then reimbursement is unnecessary. I think INVOLVE guidelines that you have referred to suggest that PPI reps should be reimbursed for time on any task if possible, even if this is done remotely / online etc. I may have misinterpreted this but for example, the first row in Table 1 suggests that reimbursement is unnecessary for focus group participants.

Participant recruitment
- Pg18 'Important to note' - maybe change to It is important to note.... On the same line you also say that the approach requires ethical approval. I'm not sure I agree, there maybe variation across ethical committees - typically PPI does not require ethical approval, although researchers may require R&D approval to access patients via NHS trusts. Maybe worth checking up and whether there's lit on it.

Discussion
- Pg18 Typo 'demonstrated that doctoral researcher can' - should be researchers?
- Pg20 'Creating tensions' - Suggestion that doctoral students don't do PPI as it can create tensions - maybe add a reference here. Did you find it created tensions because it's not formal research? I would have thought that the main issue is money and time?
- Pg20 'On other hand' - Typo, on the other hand?

Conclusion
- Pg22 Maybe mention the gaps in this work or next steps e.g. diversity of PPI, or PPI reps' perspectives on the methods you suggest.
Thank you for an insightful read!

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