

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Investigating healthcare workforce recruitment and retention: A mixed methods study protocol
AUTHORS	Alkan, Erkan; Cushen-Brewster, Noreen; Anyanwu, Philip

VERSION 1 – REVIEW

REVIEWER	Carr, Sandra E. Univ Western Australia, Health Professions Education
REVIEW RETURNED	18-Apr-2023

GENERAL COMMENTS	<p>The potential effect of the planned multiple comparisons has not been discussed in quant analysis section- that is a correction for multiple comparisons.</p> <p>The population size is not very clear. What is the response fraction you are working on to calculate your sample size? Why has the study been limited to early career/graduate health professionals when one of the research questions is about retention. For the Qual analysis, there is no discussion of how you will ensure the trustworthiness and rigour of the thematic analysis.</p>
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REVIEWER	Abrams, Ruth University of Surrey, School of Health Sciences, Faculty of Health and Medical Sciences
REVIEW RETURNED	19-May-2023

GENERAL COMMENTS	<p>Investigating healthcare workforce recruitment and retention: A mixed methods study protocol</p> <p>Comments on Abstract</p> <p>Introduction: Given that your study is focusing on nurses and allied health professionals, it is worth mentioning this more explicitly in your intro i.e. talk more specifically about these groups rather than the workforce more generally.</p> <p>Methods: HEE is or perhaps already has (?) merging/merged with NHS England so you might want to remove mention of HEE.</p> <p>Ethics: Will you also need to get IRAS/ HRA approval for this study given it is with NHS staff? Might be worth mentioning this too and explain why you don't need it, if that's the case.</p> <p>Strengths and limitations: Final bullet point, also worth considering not only geographical areas as limited but also staff groups.</p> <p>Introduction</p> <p>You report on retention issues but do not report much on recruitment and instead seem to combine/ conflate these two together. However they are very separate and distinct issues and need to be treated as such throughout your protocol. To address this, including a more comprehensive paragraph specifically on recruitment issues for nurses and AHP would help, or expanding</p>
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	<p>on the paragraph on page 6 lines 18-24 and bringing this higher up in the manuscript could also be an option.</p> <p>Is there a typo in this sentence “Understanding the organisational practice environment important in NQNs' decision on employment within the sector is essential in reducing turnover and increasing retention.”? Should it read as importance rather than important?</p> <p>Can you be more specific about what you mean by organisational practice environment? I raise this because in your earlier strengths section you mention organisational climate. If by practice environment you are referring to organisational climate, it is worth talking about this in the same way i.e. the practice environment is the organisational climate so use one phrase or the other and define. That said, in your methods you talk about using instruments assessing organisation culture, which again is something different. It is worth being explicit in what you are exploring here.</p> <p>Suggest removing mention of workforce development in the final paragraph of your introduction just before research questions because until this point you haven't mentioned development, your protocol is about recruitment and retention- workforce development is different. That said, you then go on to include development in your first RQ. If indeed workforce development is important to your study design, then you need to also discuss this in your introduction, or remove from your first RQ. It might be that development is an express need in order to recruit effectively, or retain staff.</p> <p>Methods Presumably you are exploring recruitment retrospectively i.e. from the perspective of those in post, looking back, given that you are not interviewing say, students, pre employment. Is there anyway you can reflect on and include this?</p> <p>In your qualitative strand, if workforce development is important, why is this not being factored in and explored here?</p> <p>You mentioned anticipating similar practice environments. However I would urge caution with this assumption as practice environments can be wildly different and this may be really crucial to your findings and study aims.</p> <p>Discussion You may wish to undertake a brief exploration of literature in organisational psychology/ behaviour because there is a wealth of information there on organisational climate, culture and staff turnover. Whilst you do not need to explicitly draw on this, it might help to inform and integrate your findings.</p> <p>Overall this is well written and will be a neat, interesting study. Good luck with your study.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer: 1
Dr. Sandra E. Carr, Univ Western Australia
Comments to the Author:

The potential effect of the planned multiple comparisons has not been discussed in quant analysis section- that is a correction for multiple comparisons.

Thank you for raising this. We have now emphasised that we will utilise correction for multiple comparison in methods section as “We will perform Bonferroni corrections by dividing alpha-level by the number of comparisons” (p.9).

The population size is not very clear. What is the response fraction you are working on to calculate your sample size?

Thank you for raising this issue. We have now used a different method for sample size calculation that includes population size (i.e. the number of nurses and AHPs in the local area covered) in its formula. We have now presented this in methods section as “We used the formula below to calculate the sample size of 374 for the survey.”^{35,36}

Sample size = $(N \cdot X) / (X + N - 1)$

Where: $X = Z_{\alpha/2}^2 \cdot P(1 - P) / MOE^2$

P=Proportion of sample

MOE= Margin of error

N=Population size (using 14395 as the estimated population of nurses and AHPs in the target organisations as at the first quarter of 2023)^{37,38}

$Z_{-(\alpha/2)} = 1.96$ ” (p.8).

Why has the study been limited to early career/graduate health professionals when one of the research questions is about retention.

Thank you, we did not limit our study to early career/ graduate health professionals as we explicitly stressed that in the methods “Newly qualified and established nurses, allied health professionals, and senior leaders within the NHS ICBs, including education and workforce leads with experiences relevant to the study, will be purposively sampled” (p.10).

For the Qual analysis, there is no discussion of how you will ensure the trustworthiness and rigour of the thematic analysis.

Agree and thank you. We have now indicated this in the methods as: “To ensure trustworthiness and rigour of the data collection, we will share the raw transcripts with the participants and seek their feedback to validate the accuracy and interpretation of their

responses. We will use a thematic analysis framework developed by Richie and Spencer (2002) at the national centre for social research UK to critically examine and code the data which will provide multiple perspectives to be considered and help ensure the accuracy of our interpretations. Finally, we will maintain consistency in coding by establishing clear definitions, and regular team meetings to resolve coding discrepancies.” (p.11).

Reviewer: 2

Dr. Ruth Abrams, University of Surrey

Comments to the Author:

Investigating healthcare workforce recruitment and retention: A mixed methods study protocol

Comments on Abstract

Introduction: Given that your study is focusing on nurses and allied health professionals, it is worth mentioning this more explicitly in your intro i.e. talk more specifically about these groups rather than the workforce more generally.

Thank you for raising this. We have now more specifically mentioned nurses and AHPs in the intro section, please see the following updates: “Studies have identified structural factors implicated in nurses/AHP workforce recruitment and retention. For instance, pay level has been reported as important in nurses/AHP workforce retention.¹⁰ An interplay exists between the cost of living and nurses/AHP workforce recruitment and retention in the UK. For example, the Royal College of Nursing members in England, Northern Ireland and Wales held strike actions in late 2022 and early 2023 on pay dispute, worsened by the current cost of living crisis.¹¹ Evidence from UK studies suggests that the COVID-19 pandemic further exacerbated nurses/AHP workforce recruitment and retention issues. COVID-19 infection among frontline staff, difficult working conditions, increased workload, and burnout are reported COVID-19-related factors exacerbating healthcare workforce challenges.^{12-14.” (p.3-4).}

Methods: HEE is or perhaps already has (?) merging/merged with NHS England so you might want to remove mention of HEE.

Agreed and thank you. We have now replaced all HEEs with NHS England.

Ethics: Will you also need to get IRAS/ HRA approval for this study given it is with NHS staff?

Might be worth mentioning this too and explain why you don't need it, if that's the case.

Thank you for raising this. We sought advice from our R & D NHS advisors, who suggested we did not require IRAS/HRA approval for this study. They used the NIHR algorithm below to support this decision.

(Research involving NHS or social care staff recruited as research participants by virtue of their professional role. Please refer to the algorithm for further details.)

“Our study does not require an Integrated Research Application System/Health Research Authority (IRAS/HRA) approval as it primarily involves interviews and surveys with NHS staff which does not include any clinical interventions, patient data, or direct access to patient

records. On the contrary, our focus is on the staff's experience working in healthcare organisation. Given the non-clinical nature of our study and the absence of patient-related data, our research is considered low risk and falls within the category of service evaluations or staff-related studies, which typically do not require IRAS/HRA approval. In addition, we have also run the Do I need NHS REC review algorithm with details of our study, and the system also confirmed that an NHS ethics approval is not needed for the study.” (p.12-13).

Strengths and limitations: Final bullet point, also worth considering not only geographical areas as limited but also staff groups.

Apologies for the oversight. We have now mentioned this as “One limitation of our proposed study is its exclusive focus on nurses and allied health professionals which arises because the experiences and practice environment factors affecting doctors and other healthcare professionals may differ.” (p.2)

Introduction

You report on retention issues but do not report much on recruitment and instead seem to combine/ conflate these two together. However, they are very separate and distinct issues and need to be treated as such throughout your protocol. To address this, including a more comprehensive paragraph specifically on recruitment issues for nurses and AHP would help, or expanding on the paragraph on page 6 lines 18-24 and bringing this higher up in the manuscript could also be an option.

Thank you for raising this. We have now included a paragraph discussing recruitment issues, “Compared to retention, there is a lack of studies focusing on the factors affecting the recruitment of nurses and AHPs. These few studies mostly focus on international recruitments. For instance, according to a report by Nuffield Trust, the pull factors for moving and working as a nurse in the UK include better pay, career opportunities, improved working conditions, and long-term financial stability. In terms of factors affecting the recruitment of AHPs, a scoping review revealed that the opportunity to help people was a key motivation compared to financially based motivations. The same study also identified the lack of awareness of the profession as the main barrier to choosing a career in AHP.”(p.4-5).

Is there a typo in this sentence “Understanding the organisational practice environment important in NQNs' decision on employment within the sector is essential in reducing turnover and increasing retention.”? Should it read as importance rather than important?

Apologies for the oversight. We have now corrected this typo as “importance”.

Can you be more specific about what you mean by organisational practice environment? I raise this because in your earlier strengths section you mention organisational climate. If by practice environment you are referring to organisational climate, it is worth talking about this in the same way i.e. the practice environment is the organisational climate so use one phrase or the other and define. That said, in your methods you talk about using instruments assessing organisation culture, which again is something different. It is worth being explicit in what you are exploring here.

Thank you for raising this. We have now changed all of the phrases as “organisational practice environment”.

Suggest removing mention of workforce development in the final paragraph of your introduction just before research questions because until this point you haven't mentioned development, your protocol is about recruitment and retention- workforce development is different. That said, you then go on to include development in your first RQ. If indeed workforce development is important to your study design, then you need to also discuss this in your introduction or remove from your first RQ. It might be that development is an express need in order to recruit effectively or retain staff.

Thank you for the suggestion. We have now removed workforce development accordingly.

Methods

Presumably you are exploring recruitment retrospectively i.e. from the perspective of those in post, looking back, given that you are not interviewing say, students, pre employment. Is there anyway you can reflect on and include this?

Thank you for raising this. As you mentioned, we are exploring recruitment retrospectively. We have now mentioned that “we will recruit newly qualified staff members which will help us to better understand the experience of transition from a student (pre-employment) to employment” (p.10) .

In your qualitative strand, if workforce development is important, why is this not being factored in and explored here?

Agreed and thank you. Based on your previous comment, we have removed workforce development.

You mentioned anticipating similar practice environments. However, I would urge caution with this assumption as practice environments can be wildly different and this may be really crucial to your findings and study aims.

Thank you for raising this. We have now removed the aforementioned sentence.

Discussion

You may wish to undertake a brief exploration of literature in organisational psychology/ behaviour because there is a wealth of information there on organisational climate, culture and staff turnover. Whilst you do not need to explicitly draw on this, it might help to inform and integrate your findings.

Thank you for the suggestion. We have now mentioned that the scales we are using has been widely used in organisational psychology field and we got permission to use them “These scales have been used in the field of organisational psychology to show the relationship between turnover intention and job satisfaction, organisational commitment, and social support.” “We obtained written permissions to use both scales from the developers.” (p.8).

Overall this is well written and will be a neat, interesting study. Good luck with your study.

We thank the reviewer for their positive comments.

VERSION 2 – REVIEW

REVIEWER	Carr, Sandra E. Univ Western Australia, Health Professions Education
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REVIEW RETURNED	25-Oct-2023
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GENERAL COMMENTS	<p>The abstract does not adequately reflect the research methodology applied. In particular, the population and sampling is not mentioned.</p> <p>The introduction is well constructed and concludes with the research questions- which are ambitious. The methods contains all of the essential elements and is divided into quant and qual sections- however- the structure lacks coherence. The quantitative methods are not described adequately. The size of the population is not estimated. There is a sample size calculation is present but not foregrounded by a discussion of the population. The section describing the tool- creation, adaptation and validation then piloting requires revision to increase its clarity. First introduce the validated tools, then talk about how you will adapt them. The description of the multiple regression analysis is not adequate. The assumptions being made about the variables is not clear and how many cases will be required in the model. The DISCUSSION section talks about the Integrated analysis of the quant and qual data- not sure why it is here. This is part of a mixed methods study and should be described in the METHODS.</p>
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REVIEWER	Abrams, Ruth University of Surrey, School of Health Sciences, Faculty of Health and Medical Sciences
REVIEW RETURNED	26-Oct-2023

GENERAL COMMENTS	<p>Dear authors,</p> <p>Thank you for considering the feedback provided on your manuscript. There are a few minor points still to address, since the addition of the revisions. The rest of the manuscript, in my opinion is fine.</p> <p>Sample size: I didn't spot this before but typically you wouldn't seek 'content validity' when undertaking qualitative research. Also, the concept of theoretical saturation is contentious and difficult to predict (i.e. 11 is quite small). Information power might be a more fruitful concept to apply here and is consistent with qualitative studies. Also, whilst you are seeking to draw out participants from your survey, it is likely that you will still want to apply some kind of sampling criteria to ensure a diverse range of voices are included. This might be worth acknowledging.</p> <p>Data analysis: Since your revisions you now mention two different types of analysis including Braun and Clarke and Ritchie and Spencer- you do not need both and I strongly suggest you select one approach to data analysis. For rigour and trustworthiness in qualitative research you would want to be adhering to something like COREQ: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. <i>Int J Qual Health Care.</i> 2007;19(6):349-357.</p> <p>Ethics: In some cases you do still need to complete an IRAS submission even when your work is non-clinical and non patient facing. This is particularly the case if you are recruiting via NHS channels (e.g. staff emails) or conducting research on NHS property. So, it is more that you have completed the decision toolkit that has determined that you do not need ethics. This does not require a response, was just an observation on my part.</p>
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	Overall, the key point that needs addressing since these revisions is the methodology section, in particular the qualitative sample size and data analysis descriptions. Thank you.
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VERSION 2 – AUTHOR RESPONSE

Reviewer: 1

Dr. Sandra E. Carr, Univ Western Australia

Comments to the Author:

The abstract does not adequately reflect the research methodology applied. In particular, the population and sampling is not mentioned.

- Thank you for raising this. We have now mentioned both the population and sample size in the abstract: “Our calculation suggests a sample size of 373 participants; we will aim to surpass this in our recruitment to strengthen the statistical analyses. (p.1)”

The introduction is well constructed and concludes with the research questions- which are ambitious.

- Thank you for your positive comments.

The methods contains all of the essential elements and is divided into quant and qual sections- however- the structure lacks coherence.

- We have now restructured the methods section so that it is more coherent.

Methods

Design

Phase 1: Quantitative strand

Sample Size Calculation

Procedure

Measurement instrument

Variables

Handling missing data

Statistical analysis

Sensitivity analysis

Phase 2: Qualitative strand

Procedure

Sample

Data collection

Data analysis

The quantitative methods are not described adequately. The size of the population is not estimated. There is a sample size calculation is present but not foregrounded by a discussion of the population.

- We have now highlighted the estimated size of the population and provided a discussion of the population and the turnover rates. Please see the page 8 for full formula and calculations.

The section describing the tool- creation, adaptation and validation then piloting requires revision to increase its clarity. First introduce the validated tools, then talk about how you will adapt them.

- We have now restructured this section to improve its clarity.

The description of the multiple regression analysis is not adequate. The assumptions being made about the variables is not clear and how many cases will be required in the model.

- We have now clarified the multiple regression assumptions as: "To explore the relationships in RQs 2&3, we plan to conduct separate multi-level linear regression models for each outcome variable: newly qualified staff intention to stay and established staff retention. In these models, we aim to examine their association with various organisational practice environment measures, including opportunities for growth and advancement, workload, teamwork climate, participation in decision-making, and burnout climate. Additionally, we will control for potential confounding variables, such as age, gender, ethnicity, qualification, area of practice, and geographical location.

Assumptions about Variables:

- Linearity: We assume a linear relationship between the predictor variables (organizational practice environment measures and confounders) and the outcome variables (staff intention to stay and staff retention).
- Independence of Errors: We assume that the errors of the regression model are independent of each other.
- Homoscedasticity: We assume constant variance of the errors across all levels of the predictor variables.
- Normality of Residuals: We assume that the residuals of the regression model are normally distributed.

To ensure the reliability of our results, we plan to adhere to the general guideline of having a minimum of 10 to 20 cases per predictor variable. Given the number of predictor variables in our models, we anticipate a sample size that exceeds this minimum threshold. (p.11)".

The DISCUSSION section talks about the Integrated analysis of the quant and qual data- not sure why it is here. This is part of a mixed methods study and should be described in the METHODS.

- Thank you for your comments, we have now moved this section to the methods section.

Reviewer: 2

Dr. Ruth Abrams, University of Surrey

Comments to the Author:

Dear authors,

Thank you for considering the feedback provided on your manuscript. There are a few minor points still to address, since the addition of the revisions. The rest of the manuscript, in my opinion is fine.

- Thank you for your constructive comments.

Sample size: I didn't spot this before but typically you wouldn't seek 'content validity' when undertaking qualitative research.

- We have removed this statement.

Also, the concept of theoretical saturation is contentious and difficult to predict (i.e. 11 is quite small). Information power might be a more fruitful concept to apply here and is consistent with qualitative studies.

- Thank you for your comment, we have now removed comments on data saturation and referenced information power instead: "The experiences and perspectives of participants will be explored until saturation is achieved.³⁹ We anticipate achieving saturation within 20 interviews based on the sufficient information power suggestion.⁴⁰(p.13)"

Also, whilst you are seeking to draw out participants from your survey, it is likely that you will still want to apply some kind of sampling criteria to ensure a diverse range of voices are included. This might be worth acknowledging.

- We have now included our sampling criteria: "We will aim to capture a representative and inclusive range of perspectives in our study. This will enable us to deliberately include voices from various demographic categories, such as age, gender, ethnicity, qualification, area of practice, and geographical location (p.10).

Data analysis: Since your revisions you now mention two different types of analysis including Braun and Clarke and Ritchie and Spencer- you do not need both and I strongly suggest you select one approach to data analysis.

- Thank you we have now removed Richie & Spencer.

For rigour and trustworthiness in qualitative research you would want to be adhering to something like COREQ: Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Int J Qual Health Care. 2007;19(6):349-357.

- Thank you for your suggestion, we have now included that we will adhere to the COREQ: "We will also incorporate the Consolidated Criteria for Reporting Qualitative Research (COREQ) into our methodology.⁵¹ This 32-item checklist for interviews and focus groups provides a robust framework for reporting qualitative research methods, ensuring transparency and methodological rigor. By adhering to the COREQ guidelines, we aim to strengthen the credibility, transferability, dependability, and confirmability of our qualitative research findings. (p.13-14)."

Ethics: In some cases you do still need to complete an IRAS submission even when your work is non-clinical and non patient facing. This is particularly the case if you are recruiting via NHS channels (e.g. staff emails) or conducting research on NHS property. So, it is more that you have completed the decision toolkit that has determined that you do not need ethics. This does not require a response, was just an observation on my part.

- Thank you.

Overall, the key point that needs addressing since these revisions is the methodology section, in particular the qualitative sample size and data analysis descriptions. Thank you.

- Thank you for your positive and constructive comments.

VERSION 3 – REVIEW

REVIEWER	Carr, Sandra E. Univ Western Australia, Health Professions Education
REVIEW RETURNED	22-Jan-2024

GENERAL COMMENTS	thank you for addressing the reviewers comments in your revision
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REVIEWER	Abrams, Ruth University of Surrey, School of Health Sciences, Faculty of Health and Medical Sciences
REVIEW RETURNED	03-Jan-2024

GENERAL COMMENTS	Dear authors, Thank you for persisting with these revisions. I did not see your responses to reviewer comments in this revision which made it difficult to assess all changes made. I am unable to comment on the revised statistical information as this is not my background. In regards to the qualitative section, there appears to be a slight misunderstanding of concepts. Information power is a concept sometimes used instead of theoretical saturation. Here you have used both. I would suggest revising this mis-conceptualisation and selecting either theoretical saturation, or information power. I did not see any updated information on how you will try and ensure a representative sample in the qualitative strand e.g. ensuring you try to capture marginalised voices/ groups.
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VERSION 3 – AUTHOR RESPONSE

VERSION 4 – REVIEW

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VERSION 4 – AUTHOR RESPONSE

VERSION 5 – REVIEW

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VERSION 5 – AUTHOR RESPONSE