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Investigating healthcare workforce recruitment and retention: a mixed-methods study protocol

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ABSTRACT

Introduction Although the sustainability of the health workforce has been identified as essential to achieving health and wider development objectives, challenges with securing and retaining the healthcare workforce persist. In the UK, there are notable shortages across a wide range of National Health Service (NHS) staff groups, with a high staff turnover indicating retention issues in the healthcare workforce. In addition, gaps exist in understanding the root cause of individual organisation's workforce deficiencies and how their practice environment factors interact to impact workforce recruitment and retention.

Methods and analysis An exploratory mixed-methods approach will be conducted to investigate the impact of organisational practice environment factors on healthcare workforce recruitment and retention in two Integrated Care Systems (ICS) in the East of England. We will conduct an online survey of newly qualified and established nurses and allied health professionals using a questionnaire adapted from two validated instruments. Our calculation suggests a sample size of 373 participants, we will aim to surpass this in our recruitment to strengthen the statistical analyses. Multilevel linear regression models will be fitted to evaluate the association between organisational practice environmental factors and staff recruitment and retention. The qualitative interviews will explore the experiences and perspectives of staff and senior leaders to explain the survey results and any significant associations therein. Also, the interviews will explore how to strengthen the partnership between higher education institutions, Health Education England, health and care service providers, NHS nursing and allied health professional staff to enhance recruiting and retaining staff. An exploratory inductive coding and analysis will follow Braun and Clarke's recommendations to generate key themes from transcribed interview data.

Ethics and dissemination Ethical approval has been obtained through the University of Suffolk Research Ethics Committee (approval number: RETH(S)22/051). Findings from our work will be disseminated through publications in peer-reviewed journals; presentations at stakeholders' events, professional and academic conferences; and short reports for stakeholders, including participating ICSs.

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This study will provide new insight into the relationship between turnover intention and organisational practice environment in nurses and allied health professionals in the East Anglia region.
- ⇒ The study combines qualitative and quantitative research methods to gain a grounded, multifaceted perspective on the issue of workforce recruitment and retention.
- ⇒ By including healthcare workers and senior leaders, our study will approach the organisational practice environment issues from different perspectives.
- ⇒ The study is confined to the East of England, and while focusing exclusively on nurses and allied health professionals may limit the generalisation of findings to other healthcare professions, it remains relevant to the broader UK healthcare workforce due to the substantial representation of these groups (38.48%).

INTRODUCTION

Appropriate staffing and skill mix are crucial determinants of performance and quality in healthcare delivery. Although the sustainability of the health workforce has been identified as essential to achieving health and wider development objectives,[1] a challenge with securing and retaining the healthcare workforce persists globally.[2] Countries at all socioeconomic development levels face workforce development, recruitment and retention issues.[1] Evidence from European countries, including the UK, suggests an increase in healthcare staff quitting their posts, from 5% to 17%, over 3 years.[3] In the UK, a high staff turnover, an indicator of retention issues in the healthcare workforce, persists.[2]

There are notable shortages across a wide range of National Health Service (NHS) staff groups in the UK; the most challenging include nurses and allied health professionals (AHPs), who are critical to delivering aspirations for 21st century care set out in the NHS Long-Term Plan.[4 5] AHPs are a diverse group of professionals who provide various high-quality care across health and social care pathways. About 230 000 AHPs in 14 professions (including paramedics, physiotherapists,

occupational therapists, and dieticians, among others) worked independently across the spectrum of care from primary to specialist care provision in the UK in 2021.[6] Recently, there has been a decline in previous achievements to increase the FTE number of AHPs in the UK.[7] A similar trend is seen across the NHS workforce, including the nursing staff.

The Nursing and Midwifery Council's register recorded that 6.5% of nurses left the register between 2012 and 2013.[8] Most of those who left were of active service age; only 1.2% of registered nurses left due to retirement. However, nurses quitting rates may be under-reported given that some leave work while still registered, and some take up shift jobs within the NHS away from direct clinical care.[9]

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 front-line staff, difficult working conditions, increased workload and burn-out are reported COVID-19-related factors exacerbating healthcare workforce challenges.[12–14]

Despite the focus and investment by the Department of Health and Social Care in the workforce,[15 16] there remain considerable challenges in filling the roles required across both sectors to meet the demands. Many approaches have been explored to provide the most appropriate solutions; however, overwhelming challenges must be overcome to improve staff retention across Integrated Care Systems (ICS).

Recruitment and retention issues affect different aspects of health and care services. A high turnover and shortage of nurses and AHPs impact care quality, patient outcomes, and the cost of healthcare delivery.[2 17 18] Studies have shown that a crucial time for the turnover of nurses is during the first year postqualification.[3 19 20] Psychological issues, including anxiety and stress due to work pressure in the early days of work, are common reasons for quitting among newly qualified nurses (NQNs).[21] Some studies suggest that professionals, such as nurses, often feel ill prepared for their roles and quit their profession; lack of self-confidence has been implicated in performance rate, stress levels and the difference between expectations and reality.[22] Negative experiences during clinical placements, such as a safe learning environment and lack of health and well-being support from colleagues, can also influence NQNs negatively.[23] Understanding the organisational practice environment importance in NQNs' decision on employment within the sector is essential in reducing turnover and increasing retention.

Compared with 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.[24] In terms of factors affecting the recruitment of AHPs, a scoping review revealed that the opportunity to help people was a key motivation compared with 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.[25]

With the emergence of ICS in England, there is an increasing need to upskill and consolidate services across systems to provide enhanced integration of health and social care rather than just individual institutions.[26] In addition, given the unprecedented challenges facing the NHS, systems need healthcare professionals to work differently to meet the needs of the growing number of people with complex and long-term conditions, many of whom rely on care and support from different services.[26] An appropriate number of the multiprofessional healthcare workforce is needed to deliver the required care.

Although studies have suggested strategies, such as leadership initiatives[27] improvements in technology[28] and incentives,[29] to address workforce recruitment and retention challenges, a gap still exists in the understanding of individual organisations' root cause of these deficiencies or insight as to how they relate to each other or how organisations go about implementing the appropriate strategies to manage and sustain the quality-of-care delivery.

Advancing an understanding of the elements that provide an environment for growth and job satisfaction among nurses and AHPs will inform innovative strategies to recruit and retain healthcare workers in the UK. In addressing this, the proposed study will adopt an exploratory mixed-method approach in investigating healthcare workforce recruitment and retention in two ICS in the East Anglia region of England. Partnering with local providers, higher education institutions (HEIs), NHS, and nursing and AHPs staff, we will explore elements of organisational practice environments that contribute to recruitment and retention in the Suffolk and North-East Essex (SNEE) ICS and the Norfolk and Waveney (NW) ICS.

Research questions

- What factors affect healthcare recruitment and retention in the UK?
- What elements of organisational practice environments are associated with the intention to take up employment in healthcare among newly qualified professionals in the East Anglia region?

- What elements of organisational practice environments are associated with the retention of existing healthcare staff in the East Anglia region?
- Can strengthening the partnership between HEIs, NHS, health and care service providers, NHS nursing and AHPs staff contribute to addressing practice environmental factors implicated in healthcare workforce recruitment and retention?

METHODS

Design

A sequential explanatory mixed-methods design will be adopted in the proposed study. This involves an ordered combination of quantitative and qualitative research approaches to achieve a breadth and depth of understanding and corroboration/validation of results from both elements.[30] The methodological orientation for the mixed methods will be a quantitative survey—qualitative interviews; this order will advance an understanding of the mechanisms behind any association from the survey.

We systematically reviewed existing literature (research question (RQ) 1) to integrate findings on the factors that impact healthcare recruitment and retention in the UK into the survey. The review results informed the adaptation of validated measurement instruments (questionnaires) for the survey.

While the survey will enable us to establish associations and patterns concerning organisational environments implicated in recruitment and retention, the interviews will explain the associations, especially the mechanism of impact therein. In addition, the outcome of the survey will inform the qualitative investigation. For instance, the interview guides will be designed to include questions exploring significant associations from the statistical models. Also, unexpected patterns in the results (such as no significant association where expected, an opposite direction of the association, among others) will be further explored in the interviews to help interpret their meaning and importance.

For this study, newly qualified healthcare professionals will be used to refer to those within 1 year of employment postqualification; healthcare professionals with more than 1-ear postqualification experience in their area of practice will be referred to as established/retained.

Phase 1: quantitative strand

The quantitative strand will involve the analysis of primary data from a cross-sectional survey.

Sample size calculation

The sample population will include nurses and AHPs representing the six organisations as outlined above, which consists of a population of approximately 12 500.

We used the formula below to calculate the sample size of 373 for the survey.[31 32]

$$\frac{N*X}{X+N-1}\text{Sample size} =$$

Where: $X=Z_{\alpha}/2^{2}\times P\ (1\,P)/MOE^{2}$.

p=proportion of sample.

MOE=margin of error.

n=population size.

$Z-(\alpha/2)=1.96$.

Calculation:

N (population size)=12 500

$Z_{\alpha/2}$ (Z-score for a 95% confidence level)=1.96.

p=0.5 for a conservative estimate.

MOE=0.05 for a 5% margin of error.

$X=(1.96)^{2}\times 0.5\times(1-0.5)/(0.05)^{2}$ $X=384.16$.

Sample size=12 500×384.16/(384.16=12 500–1).

Sample size=372.39.

The calculated sample size is approximately 372.39. Since the sample size should be a whole number, the recommended sample size is approximately 373.

Procedure

An online survey will be launched in the second half of 2023 to collect data from newly qualified and established nurses and AHPs on organisational practice environments implicated in their job recruitment and retention. The survey link will be live for 3 weeks. The questionnaire will be hosted online at Questionpro,[33] restricting access to one response per device. The survey link will be primarily distributed through gatekeepers (practice educators working in organisations within the ICBs, these organisations will include: East Suffolk & North East Essex NHS Foundation Trust, West Suffolk NHS Foundation Trust, Norfolk & Norwich University NHS Foundation Trust, Norfolk & Suffolk Foundation Trust, Norfolk Community Health and Care NHS Trust and East Coast Community Healthcare via email correspondence. Reminders and constant communications with gatekeepers to follow up on non-responders will be used to reduce the risk of attrition bias in the survey.

Measurement instrument

Data for the survey will be collected using a questionnaire adapted from the validated instruments from existing studies on organisational practice environment, support mechanisms, placement cycle, supervisory capacity, compassionate pedagogy, transition to the registrant and general infrastructure. Based on the preliminary review conducted so far, questionnaires will include items from the Turnover Intention Scale (TIS)[34] and the SCORE questionnaire: Assessment of your work setting Safety, Communication, Operational Reliability and Engagement.[35]

Turnover Intention Scale

TIS assesses employees' turnover intention by measuring 15 items, including statements about their frequency of seeking alternative jobs and considering leaving. The midpoint of the scale is 18 (3×6). If the total score is below 18, it indicates a desire to stay. If the scores are above 18, it suggests a desire to leave the organisation. Bothma and Roodt[34] reported a reliability coefficient of α=0.80 for the TIS.

Safety, Communication, Operational Reliability and Engagement

The SCORE survey assesses the perception of employees/employers about their organisation. It includes 73 items measuring 12 domains constituting 3e subscales: Safety Culture, Work-Balance and Engagement and Burnout; the instrument has good internal reliability ranging from α=0.82 to α=0.94.

These scales have been used in organisational psychology field to show the relationship between turnover intention and job satisfaction, organisational commitment and social support.[36–38] We obtained written permissions to use both scales from the developers.

The adapted questionnaire for the proposed study, which contains 88 items, will be self-administered (see online supplemental file appendix 1 for a sample of the questionnaire). To ensure validity following adaptation, the questionnaire will be piloted using 10 participants who meet the inclusion 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. The pilot study will consider respondents' perception of the questions, question construct (including the appropriateness of the format and wording of questionnaires), and the questionnaire's ability to collect relevant data to answer RQs 2 and 3.

Variables

The predictors will be variables on opportunities for growth and advancement, workload, teamwork climate, participation in decision-making and burn-out climate (all Likert scale measures) as indicators of organisational practice environments. The outcome variables will differ for the separate models to test RQs 2 and 3. For RQ2, the outcomes will be variables on the intention of newly qualified healthcare practitioners to take up or stay in new employment; while for RQ3, the outcomes will include a continuous variable on the number of years established healthcare professionals have remained in employment/practice, intention to leave their current practice and job satisfaction. Confounders will include participant age, gender, ethnicity, qualification, area of practice and geographical location.

Handling missing data

The rate of missing values in the dataset will be assessed to determine the pattern of missingness. Suppose values are missing at random (ie, participant characteristics do not determine missingness), we will conduct a multiple imputation to minimise bias and retain all observed values in the dataset.[39] Results will be averaged across ten imputed datasets.

Statistical analysis

To explore the relationships in RQs 2 and 3, we plan to conduct separate multilevel 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 burn-out climate. Additionally, we will control for potential confounding variables, such as age, gender, ethnicity, qualification, area of practice and geographical location.

Assumptions about variables:

1. Linearity: We will assume a linear relationship between the predictor variables (organisational practice environment measures (measured as scale variables) and age (confounder)) and the outcome variables (staff intention to stay and staff retention, measured as scale variables).
2. Independence of errors: We will assume that the errors of the regression model are independent of each other.
3. Homoscedasticity: We will assume constant variance of the errors across all levels of the predictor variables.
4. Normality of residuals: We will 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 10–20 cases per predictor variable. Given the number of predictor variables in our models, our target sample size exceeds this minimum threshold.

All analyses will be performed on Stata statistical software version SE V.17.

Sensitivity analysis

To ensure the imputation of missing values does not introduce bias in the dataset, a complete-case analysis will be conducted to test for consistency with the results from the main analyses with the imputed dataset.

Phase 2: qualitative strand

Procedure

In the qualitative strand, we will seek to understand organisational practice environment factors associated with the recruitment and retention of the health workforce. The interviews will explore the experiences and perspectives of newly qualified and established nurses, AHPs and senior leaders within the NHS ICBs, including education and workforce. In addition, this phase will contribute to answering RQs 2 and 3 by advancing an understanding of the associations established in phase 1. Also, we will use the interviews to explore how to strengthen the partnership between HEIs, NHS England, health and care service providers, NHS nursing and AHPs staff to address practice environmental factors implicated in healthcare workforce recruitment and retention (RQ3).

Sample

Newly qualified and established nurses, AHPs and senior leaders within the NHS ICBs, including education and workforce leads with experiences relevant to the study, will be purposively sampled.[40] 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. The characteristics of the interview participants will be informed by the survey results, ensuring those reporting specific experiences in the survey are interviewed for interpretation and clarification. The nurses and AHPs will be drawn from those who agreed to participate in the semistructured interviews when they completed the initial questionnaire.

The experiences and perspectives of participants will be explored until saturation is achieved.[41] We anticipate achieving saturation within 20 interviews based on the sufficient information power suggestion.[42]

Data collection

Semistructured interviews will be conducted to explore and compare the experiences of healthcare professionals and senior leaders within different organisations on supporting, developing, securing and retaining the healthcare workforce. Given the sequential explanatory mixed-methods design, interview questions cannot be finalised at this stage as these will depend on the survey results.

The interviews will be conducted in English via a virtual platform or face to face, depending on the participants' preferences, by three researchers (EA, NC-B and PA) with extensive experience in conducting qualitative interviews.

Data analysis

Interview audio records will be transcribed verbatim and analysed alongside any field notes using the thematic analysis method. Inductive coding and analysis will be conducted per Braun and Clarke's recommendations to generate key themes from the interview data.[43] With the inductive approach to coding, we expect emerging codes to be strongly related to the dataset, identifying new concepts and constructs therein.[44] Themes will be developed from clusters of linked codes of similar construct and meaning. Codes will be considered for relevance and how they connect and interact with one another. The data will be interpreted at different levels: within and between individual interviews (data units). Emerging themes will be frequently discussed among the research team and collaborators in the project. 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 also incorporate the Consolidated Criteria for Reporting Qualitative Research (COREQ) into our methodology.[45] This 32-item checklist for interviews and focus groups provides a robust framework for reporting qualitative research methods, ensuring transparency and methodological rigour. By adhering to the COREQ guidelines, we aim to strengthen the credibility, transferability, dependability and confirmability of our qualitative research findings. Finally, we will maintain consistency in coding by establishing clear definitions, and regular team meetings to resolve coding discrepancies.

The NVivo software will be used to facilitate the interview data analysis.

Patient and public involvement

None

Planned start and end date

31 January 2024–31 January 2025.

DISCUSSION

Studies of other populations have reported some organisational practice environment factors associated with securing and retaining the healthcare workforce. For example, a recent study in Ghana showed that the work practice environment, including nurse–physician relations and nurse–manager leadership, affected registered nurses' turnover intention, and the burn-out level of nurses mediated this.[46] Smoković *et al* found that job satisfaction and absenteeism were the direct predictors of turnover intention in a Croatian registered nurse population.[47] They also showed that amotivation, identified regulation, intrinsic motivation, and nurse manager ability, leadership and support of nurses were indirect predictors of turnover intention mediated by job satisfaction. Another crucial organisational practice environment factor in workforce recruitment identified in the existing literature is support for newly qualified staff.[48 49] These findings demonstrate the need to understand how organisational practice environments shape staff experiences and employment decisions. Our proposed study will provide new insight into how region-specific organisational factors could affect the recruitment and retention of the health workforce.

Based on our results, we will develop a conceptual framework to visually present the relationship pathways between the organisational practice environment and healthcare recruitment and retention. The framework will show how organisational structures interact in influencing outcomes; this will be a valuable resource for designing strategies to address current issues with the healthcare workforce in the East Anglia region.

Ethics, data management and dissemination

The proposed study has been approved by the University of Suffolk Research Ethics Committee (approval number RETH(S)22/051). Before participating in both phases of the study, participants will be provided with an information sheet, and written informed consent will be obtained. Confidentiality will be assured to all participants throughout the study. All data will be anonymised. Interview and survey data will be securely stored on a password-protected device accessible to only the research team. After 5 years following the final day of the study, all data copies will be securely deleted or shredded.

While the project leadership and research governance will be undertaken by two authors who are experienced academic leads based at the University of Suffolk (PA and NC-B), strategic oversight will be provided by a steering group of workforce leaders across the SNEE and NW ICS.

Findings from our work will be disseminated through publications in peer-reviewed journals; presentations at stakeholders' events, professional and academic conferences; and short reports for stakeholders, including participating ICSs.

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.

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Competing interests None declared.

Patient and public involvement Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

Patient consent for publication Not applicable.

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