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

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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. Multi-level 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

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3 and care service providers, NHS nursing and allied health professional staff to
4 enhance recruiting and retaining staff. An exploratory inductive coding and analysis
5 will follow Braun & Clarke's recommendations to generate key themes from
6 transcribed interview data.
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11 **Ethics and dissemination:** Ethical approval has been obtained through the University
12 of Suffolk Research Ethics Committee (approval number: RETH(S)22/051). Findings
13 from our work will be disseminated through publications in peer-reviewed journals;
14 presentations at stakeholders' events, professional and academic conferences; and
15 short reports for stakeholders, including participating ICSs.
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21 **Keywords:** health-workforce, organisational aspect, turnover, retention, recruitment
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23 **Word Count:** 2977
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26 **Strengths and limitations of this study**

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- 28 • This study will provide new insight into the relationship between turnover
29 intention and organisational climate in nurses and allied health professionals in
30 the East Anglia region.
- 31 • The study combines qualitative and quantitative research methods to gain a
32 grounded, multifaceted perspective on the issue of workforce recruitment and
33 retention.
- 34 • By including healthcare workers and senior leaders, our study will approach the
35 organisational practice environment issues from different perspectives.
- 36 • Due to the scope of the research, the study sample will be limited to the East
37 of England. Including participants from other regions may provide a more
38 representative perspective of healthcare workforce issues in England.
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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 three 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 allied health professionals 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 underreported 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 healthcare workforce recruitment and retention. For instance, pay level has been reported as important in healthcare workforce retention.¹⁰ An interplay exists between the cost of living and healthcare workforce recruitment and retention in the UK. For example, the Royal College of Nursing members in England, Northern Ireland and Wales held strike

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3 actions in late 2022 and early 2023 on pay dispute, worsened by the current cost of
4 living crisis.¹¹
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7 Evidence from UK studies suggests that the COVID-19 pandemic further exacerbated
8 healthcare workforce recruitment and retention issues. COVID-19 infection among
9 frontline staff, difficult working conditions, increased workload, and burnout are
10 reported COVID-19-related factors exacerbating healthcare workforce challenges.<sup>12–
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17 Despite the focus and investment by the Department of Health and Social Care in the
18 workforce,^{15,16} there remain considerable challenges in filling the roles required
19 across both sectors to meet the demands. Many approaches have been explored to
20 provide the most appropriate solutions; however, overwhelming challenges must be
21 overcome to improve staff retention across Integrated Care Systems.
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27 Recruitment and retention issues affect different aspects of health and care services.
28 A high turnover and shortage of nurses and AHPs impact care quality, patient
29 outcomes, and the cost of healthcare delivery.^{2,17,18} Studies have shown that a crucial
30 time for the turnover of nurses is during the first year post-qualification.^{3,19,20}
31 Psychological issues, including anxiety and stress due to work pressure in the early
32 days of work, are common reasons for quitting among newly qualified nurses
33 (NQNs).²¹ Some studies suggest that professionals, such as nurses, often feel ill-
34 prepared for their roles and quit their profession; lack of self-confidence has been
35 implicated in performance rate, stress levels, and the difference between expectations
36 and reality.²² Negative experiences during clinical placements, such as a safe learning
37 environment and lack of health and well-being support from colleagues, can also
38 influence NQNs negatively.²³ Understanding the organisational practice environment
39 important in NQNs' decision on employment within the sector is essential in reducing
40 turnover and increasing retention.
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52 With the emergence of integrated care systems (ICS) in England, there is an
53 increasing need to upskill and consolidate services across systems to provide
54 enhanced integration of health and social care rather than just individual institutions.²⁴
55 In addition, given the unprecedented challenges facing the NHS, systems need
56 healthcare professionals to work differently to meet the needs of the growing number
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3 of people with complex and long-term conditions, many of whom rely on care and
4 support from different services.²⁴ An appropriate number of the multi-professional
5 healthcare workforce is needed to deliver the required care.
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9 Although studies have suggested strategies, such as leadership initiatives²³
10 improvements in technology^{4,5}, and incentives,²⁵ to address workforce recruitment
11 and retention challenges, a gap still exists in the understanding of individual
12 organisations' root cause of these deficiencies or insight as to how they relate to each
13 other or how organisations go about implementing the appropriate strategies to
14 manage and sustain the quality-of-care delivery.
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21 Advancing an understanding of the elements that provide an environment for growth
22 and job satisfaction among nurses and AHPs will inform innovative strategies to recruit
23 and retain healthcare workers in the UK. In addressing this, the proposed study will
24 adopt an exploratory mixed-method approach in investigating healthcare workforce
25 recruitment and retention in two ICS in the East Anglia region of England. Partnering
26 with local providers, Higher Education Institutions (HEIs), Health Education England
27 (HEE), and nursing and AHPs staff, we will explore elements of organisational practice
28 environments that contribute to workforce development, recruitment and retention in
29 the Suffolk and North-East Essex (SNEE) ICS and the Norfolk and Waveney (NW)
30 ICS.
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39 *Research questions*

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- 42 • What factors affect healthcare workforce development, recruitment, and
43 retention in the United Kingdom?
 - 44 • What elements of organisational practice environments are associated with the
45 intention to take up employment in healthcare among newly qualified
46 professionals in the East Anglia region?
 - 47 • What elements of organisational practice environments are associated with the
48 retention of existing healthcare staff in the East Anglia region?
 - 49 • Can strengthening the partnership between HEIs, HEE, health and care service
50 providers, NHS nursing and AHPs staff contribute to addressing practice
51 environmental factors implicated in healthcare workforce recruitment and
52 retention?
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METHODS

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.²⁶ 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 workforce development, recruitment and retention in the United Kingdom 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 workforce development, 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 one year of employment post-qualification; healthcare professionals with more than one-year post-qualification 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.

Data

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3 An online survey will be launched in the second half of 2023 to collect data from newly
4 qualified and established nurses and Allied Health professionals on organisational
5 practice environments implicated in their job recruitment and retention. The survey link
6 will be live for three weeks. The questionnaire will be hosted online at Questionpro²⁷,
7 restricting access to one response per device. The survey link will be primarily
8 distributed through gatekeepers (practice educators working in organisations within
9 the ICBs, these organisations will include: East Suffolk & North East Essex NHS
10 Foundation Trust (ESNEFT), West Suffolk NHS Foundation Trust (WSFT), Norfolk &
11 Norwich University NHS Foundation Trust (NNUHT), Norfolk & Suffolk Foundation
12 Trust (NSFT), Norfolk Community Health and Care NHS Trust (NCH&C), and East
13 Coast Community Healthcare (ECCH,)) via email correspondence. Reminders and
14 constant communications with gatekeepers to follow up on non-responders will be
15 used to reduce the risk of attrition bias in the survey.
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26 *Measurement instrument*

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29 Data for the survey will be collected using a questionnaire adapted from the validated
30 instruments from existing studies on organisational culture, support mechanisms,
31 placement cycle, supervisory capacity, compassionate pedagogy, transition to the
32 registrant, and general infrastructure. Based on the preliminary review conducted so
33 far, questionnaires will include items from the Turnover Intention Scale (TIS)²⁸ and the
34 SCORE questionnaire: Assessment of your work setting Safety, Communication,
35 Operational Reliability, and Engagement.²⁹ The SCORE survey assesses the
36 perception of employees/employers about their organisation. It includes 73 items
37 measuring 12 domains constituting three subscales: Safety Culture, Work-Balance,
38 and Engagement and Burnout; the instrument has good internal reliability ranging from
39 $\alpha=0.82$ to $\alpha=0.94$.
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49 TIS assesses employees' turnover intention by measuring 15 items, including
50 statements about their frequency of seeking alternative jobs and considering leaving.
51 The midpoint of the scale is 18 (3 x 6). If the total score is below 18, it indicates a
52 desire to stay. If the scores are above 18, it suggests a desire to leave the organisation.
53 Bothma and Roodt²⁸ reported a reliability coefficient of $\alpha =0.80$ for the TIS.
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3 The adapted questionnaire for the proposed study, which contains 88 items, will be
4 self-administered (see appendix 1 for a sample of the questionnaire). To ensure
5 validity following adaptation, the questionnaire will be piloted using 10 participants who
6 meet the inclusion criteria. These participants will be similar to the target participants
7 for the survey. The pilot study will consider respondents' perception of the questions,
8 question construct (including the appropriateness of the format and wording of
9 questionnaires), and the questionnaire's ability to collect relevant data to answer
10 research questions 2 and 3.
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17 *Variables*

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

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41 We used G*Power Software Package Program v3.1³⁰ to calculate the sample size.
42 Calculations revealed that a minimum sample size of 64 for each group (AHPs and
43 Nurses) was required (alpha 0.05, power 0.80 and an effect size 0.50) to achieve a
44 statistically significant finding. However, we aim to exceed this number in each group
45 to ensure statistical rigour. We will target a balanced number of newly qualified and
46 established healthcare staff in our sample.
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53 *Handling missing data*

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55 The rate of missing values in the dataset will be assessed to determine the pattern of
56 missingness. Suppose values are missing at random (that is, participant
57 characteristics do not determine missingness), we will conduct a multiple imputation
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3 to minimise bias and retain all observed values in the dataset.³¹ Results will be
4 averaged across ten imputed datasets.
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7 *Statistical analysis*

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10 To explore the relationships in RQs 2&3, we will conduct separate multi-level linear
11 regression models for each outcome (newly qualified staff intention to stay and
12 established staff retention) to explore their association with organisational practice
13 environment measures (opportunities for growth and advancement, workload,
14 teamwork climate, participation in decision-making, burnout climate), controlling for
15 confounders (age, gender, ethnicity, qualification, area of practice, and geographical
16 location). In addition, the multi-level model will account for the fact that healthcare
17 professionals are nested within organisations, allowing the evaluation of between-
18 and within-individual practitioner effects.
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27 All analyses will be performed on Stata statistical software version SE 17.
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30 *Sensitivity analysis*

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32 To ensure the imputation of missing values does not introduce bias in the dataset, a
33 complete case analysis will be conducted to test for consistency with the results from
34 the main analyses with the imputed dataset.
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38 **Phase 2: Qualitative strand**

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41 In the qualitative strand, we will seek to understand organisational practice
42 environment factors associated with the recruitment and retention of the health
43 workforce. The interviews will explore the experiences and perspectives of newly
44 qualified and established nurses, allied health professionals, and senior leaders within
45 the NHS ICBs, including education and workforce. In addition, this phase will
46 contribute to answering RQs 2&3 by advancing an understanding of the associations
47 established in phase 1. Also, we will use the interviews to explore how to strengthen
48 the partnership between HEIs, HEE, health and care service providers, NHS nursing
49 and AHPs staff to address practice environmental factors implicated in healthcare
50 workforce recruitment and retention (RQ3).
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59 *Sampling technique and recruitment*

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3 Newly qualified and established nurses, allied health professionals, and senior leaders
4 within the NHS ICBs, including education and workforce leads with experiences
5 relevant to the study, will be purposively sampled.³² The characteristics of the interview
6 participants will be informed by the survey results, ensuring those reporting specific
7 experiences in the survey are interviewed for interpretation and clarification. The
8 nurses and allied health professionals will be drawn from those who agreed to
9 participate in the semi-structured interviews when they completed the initial
10 questionnaire.

17 *Sample size*

20 To achieve content validity,³³ the sample size will be determined after the conduct of
21 the interviews; the experiences and perspectives of participants will be explored until
22 saturation is achieved.³⁴ However, given the likelihood of similarities in organisational
23 practice environments shaping the experiences of staff and providers within the ICSs
24 included in this study, we anticipate achieving saturation within 20 interviews.

29 *Data collection*

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

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

47 *Data analysis*

50 Interview audio records will be transcribed verbatim and analysed alongside any field
51 notes using the thematic analysis method. Inductive coding and analysis will be
52 conducted per Braun & Clarke's recommendations to generate key themes from the
53 interview data.³⁵ With the inductive approach to coding, we expect emerging codes to
54 be strongly related to the dataset, identifying new concepts and constructs therein.³⁶

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3 Themes will be developed from clusters of linked codes of similar construct and
4 meaning. Codes will be considered for relevance and how they connect and interact
5 with one another. The data will be interpreted at different levels: within and between
6 individual interviews (data units). Emerging themes will be frequently discussed
7 among the research team and collaborators in the project.
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12 The NVivo software will be used to facilitate the interview data analysis.
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14 15 **DISCUSSION**

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18 We will adopt an integrated interpretation of the quantitative and qualitative strands'
19 results. Methodological triangulation and an integrated approach in discussing the
20 proposed research results will provide a more in-depth understanding of study findings
21 and clarify contrasting findings by discussing them comparatively.³⁷
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26 Studies of other populations have reported some organisational practice environment
27 factors associated with securing and retaining the healthcare workforce. For example,
28 a recent study in Ghana showed that the work practice environment, including nurse-
29 physician relations and nurse-manager leadership, affected registered nurses'
30 turnover intention, and the burnout level of nurses mediated this.³⁸ Smokrović et al.
31 found that job satisfaction and absenteeism were the direct predictors of turnover
32 intention in a Croatian registered nurse population.³⁹ They also showed that
33 amotivation, identified regulation, intrinsic motivation, and nurse manager ability,
34 leadership and support of nurses were indirect predictors of turnover intention
35 mediated by job satisfaction. Another crucial organisational practice environment
36 factor in workforce recruitment identified in the existing literature is support for newly
37 qualified staff.^{40,41} These findings demonstrate the need to understand how
38 organisational practice environments shape staff experiences and employment
39 decisions. Our proposed study will provide new insight into how region-specific
40 organisational factors could affect the recruitment and retention of the health
41 workforce.
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55 Based on our results, we will develop a conceptual framework to visually present the
56 relationship pathways between the organisational practice environment and
57 healthcare workforce development, recruitment and retention. The framework will
58 show how organisational structures interact in influencing outcomes; this will be a
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3 valuable resource for designing strategies to address current issues with the
4 healthcare workforce in the East Anglia region.
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7 *Ethics, data management and dissemination*

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10 The proposed study has been approved by the University of Suffolk Research Ethics
11 Committee (approval number RETH(S)22/051). Before participating in both phases
12 of the study, participants will be provided with an information sheet, and written
13 informed consent will be obtained. Confidentiality will be assured to all participants
14 throughout the study. All data will be anonymised. Interview and survey data will be
15 securely stored on a password-protected device accessible to only the research
16 team. After five years following the final day of the study, all data copies will be
17 securely deleted or shredded.
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21 While the project leadership and research governance will be undertaken by two
22 authors who are experienced academic leads based at the University of Suffolk (PA
23 and NC), strategic oversight will be provided by a steering group of workforce leaders
24 across the SNEE and NW ICS'.
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28 Findings from our work will be disseminated through publications in peer-reviewed
29 journals; presentations at stakeholders' events, professional and academic
30 conferences; and short reports for stakeholders, including participating ICSs.
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33 *Acknowledgments*

34
35 We would like to acknowledge Health Education England and the steering committee
36 members (Dr Paul Driscoll-Evans and Professor Lynne Wigens).
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38

39 *Author contributions*

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41 Study Design: EA, PA, NB. Proposal Preparation: EA, PA, NB. Prior to submission,
42 all authors read and have given approval for the final manuscript.
43
44

45 *Funding*

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47 This study was funded by Health Education England (RD22061).
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50 *Competing Interest*

None declared.

Ethics Approval

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.

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

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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. Multi-level 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

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3 and care service providers, NHS nursing and allied health professional staff to
4 enhance recruiting and retaining staff. An exploratory inductive coding and analysis
5 will follow Braun and Clarke's recommendations to generate key themes from
6 transcribed interview data.
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11 **Ethics and dissemination:** Ethical approval has been obtained through the University
12 of Suffolk Research Ethics Committee (approval number: RETH(S)22/051). Findings
13 from our work will be disseminated through publications in peer-reviewed journals;
14 presentations at stakeholders' events, professional and academic conferences; and
15 short reports for stakeholders, including participating ICSs.
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21 **Keywords:** health-workforce, organisational aspect, turnover, retention, recruitment
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23 **Word Count:** 2977
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26 **Strengths and limitations of this study**

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- 28
29 • This study will provide new insight into the relationship between turnover
30 intention and organisational practice environment in nurses and allied health
31 professionals in the East Anglia region.
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33 • The study combines qualitative and quantitative research methods to gain a
34 grounded, multifaceted perspective on the issue of workforce recruitment and
35 retention.
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39 • By including healthcare workers and senior leaders, our study will approach the
40 organisational practice environment issues from different perspectives.
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44 • Due to the scope of the research, the study sample will be limited to the East
45 of England. Including participants from other regions may provide a more
46 representative perspective of healthcare workforce issues in England. One
47 limitation of our proposed study is its exclusive focus on nurses and allied health
48 professionals. This limitation arises because the experiences and practice
49 environment factors affecting doctors and other healthcare professionals may
50 differ. However, it's important to note that our findings will remain highly relevant
51 to the broader UK healthcare workforce, as nurses and allied health
52 professionals constitute a significant majority (38.48%) of the workforce.
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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 three 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 allied health professionals 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 underreported 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

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3 actions in late 2022 and early 2023 on pay dispute, worsened by the current cost of
4 living crisis (11).
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7 Evidence from UK studies suggests that the COVID-19 pandemic further exacerbated
8 nurses/AHP workforce recruitment and retention issues. COVID-19 infection among
9 frontline staff, difficult working conditions, increased workload, and burnout are
10 reported COVID-19-related factors exacerbating healthcare workforce challenges
11 (12–14).
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17 Despite the focus and investment by the Department of Health and Social Care in the
18 workforce(15,16), there remain considerable challenges in filling the roles required
19 across both sectors to meet the demands. Many approaches have been explored to
20 provide the most appropriate solutions; however, overwhelming challenges must be
21 overcome to improve staff retention across Integrated Care Systems.
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27 Recruitment and retention issues affect different aspects of health and care services.
28 A high turnover and shortage of nurses and AHPs impact care quality, patient
29 outcomes, and the cost of healthcare delivery (2,17,18). Studies have shown that a
30 crucial time for the turnover of nurses is during the first year post-qualification
31 (3,19,20). Psychological issues, including anxiety and stress due to work pressure in
32 the early days of work, are common reasons for quitting among newly qualified nurses
33 (NQNs) (21). Some studies suggest that professionals, such as nurses, often feel ill-
34 prepared for their roles and quit their profession; lack of self-confidence has been
35 implicated in performance rate, stress levels, and the difference between expectations
36 and reality (22). Negative experiences during clinical placements, such as a safe
37 learning environment and lack of health and well-being support from colleagues, can
38 also influence NQNs negatively (23). Understanding the organisational practice
39 environment importance in NQNs' decision on employment within the sector is
40 essential in reducing turnover and increasing retention.
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52 Compared to retention, there is a lack of studies focusing on the factors affecting the
53 recruitment of nurses and AHPs. These few studies mostly focus on international
54 recruitment. For instance, according to a report by Nuffield Trust, the pull factors for
55 moving and working as a nurse in the UK include better pay, career opportunities,
56 improved working conditions, and long-term financial stability (24). In terms of factors
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3 affecting the recruitment of AHPs, a scoping review revealed that the opportunity to
4 help people was a key motivation compared to financially based motivations. The
5 same study also identified the lack of awareness of the profession as the main barrier
6 to choosing a career in AHP (25).
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11 With the emergence of integrated care systems (ICS) in England, there is an
12 increasing need to upskill and consolidate services across systems to provide
13 enhanced integration of health and social care rather than just individual institutions
14 (26). In addition, given the unprecedented challenges facing the NHS, systems need
15 healthcare professionals to work differently to meet the needs of the growing number
16 of people with complex and long-term conditions, many of whom rely on care and
17 support from different services (26). An appropriate number of the multi-professional
18 healthcare workforce is needed to deliver the required care.
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26 Although studies have suggested strategies, such as leadership initiatives (27)
27 improvements in technology (28), and incentives (29), to address workforce
28 recruitment and retention challenges, a gap still exists in the understanding of
29 individual organisations' root cause of these deficiencies or insight as to how they
30 relate to each other or how organisations go about implementing the appropriate
31 strategies to manage and sustain the quality-of-care delivery.
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37 Advancing an understanding of the elements that provide an environment for growth
38 and job satisfaction among nurses and AHPs will inform innovative strategies to recruit
39 and retain healthcare workers in the UK. In addressing this, the proposed study will
40 adopt an exploratory mixed-method approach in investigating healthcare workforce
41 recruitment and retention in two ICS in the East Anglia region of England. Partnering
42 with local providers, Higher Education Institutions (HEIs), NHS, and nursing and AHPs
43 staff, we will explore elements of organisational practice environments that contribute
44 to recruitment and retention in the Suffolk and North-East Essex (SNEE) ICS and the
45 Norfolk and Waveney (NW) ICS.
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53 *Research questions*

- 54 • What factors affect healthcare recruitment, and retention in the United
55 Kingdom?
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- 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

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 United Kingdom 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.

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3 For this study, newly qualified healthcare professionals will be used to refer to those
4 within one year of employment post-qualification; healthcare professionals with more
5 than one-year post-qualification experience in their area of practice will be referred to
6 as established/retained.
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10 11 **Phase 1: Quantitative strand**

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14 The quantitative strand will involve the analysis of primary data from a cross-sectional
15 survey.
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17 18 *Data*

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21 An online survey will be launched in the second half of 2023 to collect data from newly
22 qualified and established nurses and Allied Health professionals on organisational
23 practice environments implicated in their job recruitment and retention. The survey link
24 will be live for three weeks. The questionnaire will be hosted online at Questionpro
25 (31), restricting access to one response per device. The survey link will be primarily
26 distributed through gatekeepers (practice educators working in organisations within
27 Suffolk and North East Essex, and Norfolk and Waveney Integrated Care Boards
28 (ICBs), these organisations will include: East Suffolk & North East Essex NHS
29 Foundation Trust (ESNEFT), West Suffolk NHS Foundation Trust (WSFT), Norfolk &
30 Norwich University NHS Foundation Trust (NNUHT), Norfolk & Suffolk Foundation
31 Trust (NSFT), Norfolk Community Health and Care NHS Trust (NCH&C), and East
32 Coast Community Healthcare (ECCH)) via email correspondence. Reminders and
33 constant communications with gatekeepers to follow up on non-responders will be
34 used to reduce the risk of attrition bias in the survey.
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46 47 *Measurement instrument*

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49 Data for the survey will be collected using a questionnaire adapted from the validated
50 instruments from existing studies on organisational practice environment, support
51 mechanisms, placement cycle, supervisory capacity, compassionate pedagogy,
52 transition to the registrant, and general infrastructure. Based on the preliminary review
53 conducted so far, questionnaires will include items from the Turnover Intention Scale
54 (TIS) (32) and the SCORE questionnaire: Assessment of your work setting Safety,
55 Communication, Operational Reliability, and Engagement (33). The SCORE survey
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3 assesses the perception of employees/employers about their organisation. It includes
4 73 items measuring 12 domains constituting three subscales: Safety Culture, Work-
5 Balance, and Engagement and Burnout; the instrument has good internal reliability
6 ranging from $\alpha=0.82$ to $\alpha=0.94$.
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11 TIS assesses employees' turnover intention by measuring 15 items, including
12 statements about their frequency of seeking alternative jobs and considering leaving.
13 The midpoint of the scale is 18 (3 x 6). If the total score is below 18, it indicates a
14 desire to stay. If the scores are above 18, it suggests a desire to leave the organisation.
15 Bothma and Roodt (32) reported a reliability coefficient of $\alpha =0.80$ for the TIS.
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20 These scales have been used in the field of organisational psychology to show the
21 relationship between turnover intention and job satisfaction, organisational
22 commitment, and social support (34–36). We obtained written permissions to use both
23 scales from the developers.
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29 The adapted questionnaire for the proposed study, which contains 88 items, will be
30 self-administered (see appendix 1 for a sample of the questionnaire). To ensure
31 validity following adaptation, the questionnaire will be piloted using 10 participants who
32 meet the inclusion criteria. These participants will be similar to the target participants
33 for the survey. The pilot study will consider respondents' perception of the questions,
34 question construct (including the appropriateness of the format and wording of
35 questionnaires), and the questionnaire's ability to collect relevant data to answer
36 research questions 2 and 3.
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43 *Variables*

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

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10 We used the formula below to calculate the sample size of 374 for the survey (37,38).
11 We will target to achieve a balanced number of newly qualified and established nurses
12 and AHPs in our sample.
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$$16 \text{ Sample size} = \frac{N * X}{X + N - 1}$$

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

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20 P=Proportion of sample

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22 MOE= Margin of error

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24 N=Population size (using 14395 as the estimated population of nurses and AHPs in the target
25 organisations within the two ICBs as at the first quarter of 2023)(39,40)

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27 $Z_{-(\alpha/2)} = 1.96$
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30 *Handling missing data*

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32 The rate of missing values in the dataset will be assessed to determine the pattern of
33 missingness. Suppose values are missing at random (that is, participant
34 characteristics do not determine missingness), we will conduct a multiple imputation
35 to minimise bias and retain all observed values in the dataset (41). Results will be
36 averaged across ten imputed datasets.
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41 *Statistical analysis*

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43 To explore the relationships in RQs 2&3, we will conduct separate multi-level linear
44 regression models for each outcome (newly qualified staff intention to stay and
45 established staff retention) to explore their association with organisational practice
46 environment measures (opportunities for growth and advancement, workload,
47 teamwork climate, participation in decision-making, burnout climate), controlling for
48 confounders (age, gender, ethnicity, qualification, area of practice, and geographical
49 location). In addition, the multi-level model will account for the fact that healthcare
50 professionals are nested within organisations, allowing the evaluation of between-
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3 and within-individual practitioner effects. We will perform Bonferroni corrections by
4 dividing alpha-level by the number of comparisons.
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7 All analyses will be performed on Stata statistical software version SE 17.
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10 *Sensitivity analysis*

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13 To ensure the imputation of missing values does not introduce bias in the dataset, a
14 complete case analysis will be conducted to test for consistency with the results from
15 the main analyses with the imputed dataset.
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18 **Phase 2: Qualitative strand**

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

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43 Newly qualified and established nurses, allied health professionals, and senior leaders
44 within the NHS ICBs, including education and workforce leads with experiences
45 relevant to the study, will be purposively sampled (42). We will recruit newly qualified
46 staff members which will help us to better understand the experience of transition from
47 a student (pre-employment) to employment. The characteristics of the interview
48 participants will be informed by the survey results, ensuring those reporting specific
49 experiences in the survey are interviewed for interpretation and clarification. The
50 nurses and allied health professionals will be drawn from those who agreed to
51 participate in the semi-structured interviews when they completed the initial
52 questionnaire.
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Sample size

To achieve content validity (43), the sample size will be determined after the conduct of the interviews; the experiences and perspectives of participants will be explored until saturation is achieved (44). We anticipate achieving saturation within 11 interviews.

Data collection

Semi-structured 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 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 & Clarke's recommendations to generate key themes from the interview data (45). With the inductive approach to coding, we expect emerging codes to be strongly related to the dataset, identifying new concepts and constructs therein (46). 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 use a thematic analysis framework developed by Richie and Spencer (47) 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 (48). Finally, we will maintain consistency in coding by establishing clear definitions, and regular team meetings to resolve coding discrepancies.

Planned Start and End Dates: July 2023- to June 2023

Patient and Public Involvement

None

DISCUSSION

We will adopt an integrated interpretation of the quantitative and qualitative strands' results. Methodological triangulation and an integrated approach in discussing the proposed research results will provide a more in-depth understanding of study findings and clarify contrasting findings by discussing them comparatively (49).

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 burnout level of nurses mediated this (50). Smokrović et al. found that job satisfaction and absenteeism were the direct predictors of turnover intention in a Croatian registered nurse population (51). 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 (52,53). 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

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3 structures interact in influencing outcomes; this will be a valuable resource for
4 designing strategies to address current issues with the healthcare workforce in the
5 East Anglia region.
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8 9 *Ethics, data management and dissemination*

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12 The proposed study has been approved by the University of Suffolk Research Ethics
13 Committee (approval number RETH(S)22/051). Before participating in both phases
14 of the study, participants will be provided with an information sheet, and written
15 informed consent will be obtained. Confidentiality will be assured to all participants
16 throughout the study. All data will be anonymised. Interview and survey data will be
17 securely stored on a password-protected device accessible to only the research
18 team. After five years following the final day of the study, all data copies will be
19 securely deleted or shredded.
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27 While the project leadership and research governance will be undertaken by two
28 authors who are experienced academic leads based at the University of Suffolk (PA
29 and NC), strategic oversight will be provided by a steering group of workforce leaders
30 across the SNEE and NW ICS'.
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35 Findings from our work will be disseminated through publications in peer-reviewed
36 journals; presentations at stakeholders' events, professional and academic
37 conferences; and short reports for stakeholders, including participating ICSs.
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41 Our study does not require an Integrated Research Application System/Health
42 Research Authority (IRAS/HRA) approval as it primarily involves interviews and
43 surveys with NHS staff which does not include any clinical interventions, patient data,
44 or direct access to patient records. On the contrary, our focus is on the staff's
45 experience working in healthcare organisations. Given the non-clinical nature of our
46 study and the absence of patient-related data, our research is considered low risk
47 and falls within the category of service evaluations or staff-related studies, which
48 typically do not require IRAS/HRA approval. In addition, we have also run the "Do I
49 need NHS REC review algorithm" with details of our study, and the system also
50 confirmed that an NHS ethics approval is not needed for the study.
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58 59 *Acknowledgments*

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Author contributions

Study Design: EA, PA, NB. Proposal Preparation: EA, PA, NB. Prior to submission, all authors read and have given approval for the final manuscript.

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Competing Interest

None declared.

Ethics Approval

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.

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QUESTIONNAIRE*

***Most of items removed because of the Copyright Issue.**

Study title: Securing and retaining a local workforce: An exploration of the elements that provide an environment for growth across two integrated health systems

Instruction: The questionnaire is divided into three sections. All questions are multi-choice; please choose the response that best applies to you and your experience

Section 1: Demographics

This section asks demographic questions.

1) Please indicate your professional qualification

- a. Certificate
- b. Undergraduate
- c. Postgraduate
- d. PhD
- e. Other
- f. NA

2) To which staff group do you belong?

- a. Nursing/Midwife (NMC Registered)
- b. Nursing/Midwife (N/As HCA, SHCA, Student, etc.)
- c. Qualified AHP (Art therapists, Drama therapists, Music therapists, Podiatrists, Dietitians, Occupational therapists, Operating department practitioners, Orthoptists, Osteopaths, Paramedics, Physiotherapists, Prosthetists and orthotists, Radiographers, Speech and language therapists, etc.)
- d. Senior Manager
- e. Other
- f. NA

3) What is your gender?

- a. Male
- b. Female
- c. Rather not say
- d. Other

4) What is your age?

.....

5) What is your ethnicity?

- a. Asian
- b. Black British
- c. Black or African American
- d. Caucasian or White
- e. Multiracial
- f. Native Hawaiian or Other Pacific Islander

- 1
2
3 g. White British
4 h. Other
5 i. Prefer not to say
6
7

8 **6) What is the highest level of education you have completed?**

- 9 a. CSE
10 b. OLevel
11 c. GCSE
12 d. A Level
13 e. Bachelor's degree
14 f. Master's degree
15 g. Doctoral degree
16 h. Other
17 i. NA
18
19
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21 **7) Which nursing field would you like to work in (for newly qualified nurses only)?**

- 22 a. Adult nursing
23 b. children's nursing
24 c. learning disabilities nursing
25 d. mental health nursing
26 e. Other
27 f. NA
28
29

30 **8) Which nursing field do you work in (for established nurses only)?**

- 31 a. Adult nursing
32 b. children's nursing
33 c. learning disabilities nursing
34 d. mental health nursing
35 e. Other
36 f. NA
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40 **9) Which region do you work in?**

- 41 a. East of England
42 b. London
43 c. Midlands
44 d. North East and Yorkshire
45 e. North West
46 f. South East
47 g. South West
48 h. Other
49 i. NA
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53 **10) How many years of experience do you have in your field?**

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Section 2: Turnover intention scale (TIS)

This section explores your experience of your current job and the extent to which you intend to stay at the organisation. Please read each question and indicate your response using the scale provided:

During the past 9 months...

1	How often have you considered leaving your job?	Never	1-----2-----3-----4-----5	Always
2	How satisfying is your job in fulfilling your personal needs?	Very satisfying	1-----2-----3-----4-----5	Totally dissatisfying
3	How often are you frustrated when not given the opportunity to achieve your personal work-related goals at work?	Never	1-----2-----3-----4-----5	Always
4	How often are your personal values at work compromised?	Never	1-----2-----3-----4-----5	Always
5	How often do you consider getting another job that suits your needs better?	Never	1-----2-----3-----4-----5	Always
6	How likely are you to accept another job at the same compensation level should it be offered to you?	Highly unlikely	1-----2-----3-----4-----5	Highly likely
7	How often do you look forward to another day at work?	Always	1-----2-----3-----4-----5	Never
8		Never	1-----2-----3-----4-----5	Always
9R		To no extent	1-----2-----3-----4-----5	To a very large extent
10R		To no extent	1-----2-----3-----4-----5	To a very large extent
11		Never	1-----2-----3-----4-----5	All of the time
12		To no extent	1-----2-----3-----4-----5	To a very large extent
13R		To no extent	1-----2-----3-----4-----5	To a very large extent
14	How frequently do you scan the internet or other sources for alternative job opportunities?	Never	1-----2-----3-----4-----5	All of the time

Section 3: Assessment of your work setting Safety, Communication, Operational Reliability, and Engagement (SCORE)

You will be asked questions on organisational practice environment, your specific unit or clinical experience and expertise. Choose your responses using the scale below:

A	B	C	D	E	X
Disagree Strongly	Disagree Slightly	Neutral	Agree Slightly	Agree Strongly	Not Applicable
Improvement Readiness (Practice Environment)					
The practice environment in this work setting utilises input/suggestions from the people who work here.					
A	B	C	D	E	X
The practice environment in this work setting effectively fixes defects to improve the quality of what we do.					
A	B	C	D	E	X
The practice environment in this work setting allows us to gain important insights into what we do well.					
A	B	C	D	E	X
The practice environment in this work setting is protected by our local management.					
A	B	C	D	E	X
Local Leadership					
In this work setting, local management is available at predictable times.					
A	B	C	D	E	X
In this work setting, local management communicates their expectations to me about my performance.					
A	B	C	D	E	X
Burnout Climate and Personal Burnout					
Events in this work setting affect the lives of people here in an emotionally unhealthy way.					
A	B	C	D	E	X
Teamwork Climate					
Disagreements in this work setting are appropriately resolved (i.e., not <i>who</i> is right, but <i>what</i> is best for the patient).					
A	B	C	D	E	X
In this work setting, it is difficult to speak up if I perceive a problem with patient care.					
A	B	C	D	E	X
It is easy for personnel here to ask questions when there is something that they do not understand.					
A	B	C	D	E	X

1									
2									
3	The people here from different disciplines/backgrounds work together as a well-	A	B	C	D	E	X		
4	coordinated team.								
5									
6									
7									
8									
9									
10									
11	Safety Climate								
12	My suggestions about quality would be acted upon if I expressed them to management.	A	B	C	D	E	X		
13									
14									
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23									
24	Regarding growth opportunities in this work setting, I have ...								
25	opportunities for personal growth/development.	A	B	C	D	E	X		
26									
27									
28									
29									
30									
31	influence in decisions about work activity timelines.	A	B	C	D	E	X		
32									
33	Regarding the workload in this work setting, I have ...								
34	too much work to do.	A	B	C	D	E	X		
35									
36									X
37									X
38									X
39									X
40									X
41									
42	Regarding participatory decision-making at work ...								
43	the decision-making process is clear to me.	A	B	C	D	E	X		
44	it is clear to whom should address specific problems.	A	B	C	D	E	X		
45	I can discuss work problems with my direct supervisor/ physician leadership.	A	B	C	D	E	X		
46	I can participate in decisions about the nature of my work.	A	B	C	D	E	X		
47									
48	I have a direct influence on my organisation's decisions.	A	B	C	D	E	X		
49									
50	Regarding job-related uncertainty about the future in this work setting ...								
51	I am certain I will still be working here in one year.	A	B	C	D	E	X		
52	I am certain I will keep my current job next year.	A	B	C	D	E	X		
53	I am certain that I will keep the same functional level as currently.	A	B	C	D	E	X		
54									
55	Regarding advancement in this organisation...								
56	I can live comfortably on my pay.	A	B	C	D	E	X		
57									
58									
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1									
2									
3	this organisation pays good salaries.	A	B	C	D	E	X		
4									
5	I am paid enough for the work I do.	A	B	C	D	E	X		
6									
7									
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11									
12	With respect to my intentions to leave this organisation								
13									
14	I would like to find a better job.	A	B	C	D	E	X		
15	I often think about leaving this job.	A	B	C	D	E	X		
16									
17	I have plans to leave this job within 1 yr.	A	B	C	D	E	X		
18									

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21 *During the past week, how often did this occur?*

A	B	C	D	X
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	All of the time (5-7 days)	Not Applicable
Skipped a meal	A B C D X	Had difficulty sleeping	A B C D X	

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

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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. Multi-level 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

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3 interviews will explore how to strengthen the partnership between higher education
4 institutions, Health Education England, health and care service providers, NHS
5 nursing and allied health professional staff to enhance recruiting and retaining staff.
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7 An exploratory inductive coding and analysis will follow Braun & Clarke's
8 recommendations to generate key themes from transcribed interview data.
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13 **Ethics and dissemination:** Ethical approval has been obtained through the University
14 of Suffolk Research Ethics Committee (approval number: RETH(S)22/051). Findings
15 from our work will be disseminated through publications in peer-reviewed journals;
16 presentations at stakeholders' events, professional and academic conferences; and
17 short reports for stakeholders, including participating ICSs.
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22 **Keywords:** health-workforce, organisational aspect, turnover, retention, recruitment
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25 **Word Count:** 2977
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28 **Strengths and limitations of this study**

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- 30 • This study will provide new insight into the relationship between turnover
31 intention and organisational practice environment in nurses and allied health
32 professionals in the East Anglia region.
- 33 • The study combines qualitative and quantitative research methods to gain a
34 grounded, multifaceted perspective on the issue of workforce recruitment and
35 retention.
- 36 • By including healthcare workers and senior leaders, our study will approach the
37 organisational practice environment issues from different perspectives.
- 38 • The study is confined to the East of England, and while focusing exclusively
39 on nurses and allied health professionals may limit the generalisation of
40 findings to other healthcare professions, it remains relevant to the broader UK
41 healthcare workforce due to the substantial representation of these groups
42 (38.48%).
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54 **INTRODUCTION**

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57 Appropriate staffing and skill mix are crucial determinants of performance and quality
58 in healthcare delivery. Although the sustainability of the health workforce has been
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3 identified as essential to achieving health and wider development objectives[1], a
4 challenge with securing and retaining the healthcare workforce persists globally[2].
5 Countries at all socioeconomic development levels face workforce development,
6 recruitment, and retention issues[1]. Evidence from European countries, including the
7 UK, suggests an increase in healthcare staff quitting their posts, from 5% to 17%, over
8 three years[3]. In the UK, a high staff turnover, an indicator of retention issues in the
9 healthcare workforce, persists[2].
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16 There are notable shortages across a wide range of National Health Service (NHS)
17 staff groups in the UK; the most challenging include nurses and allied health
18 professionals (AHPs), who are critical to delivering aspirations for 21st-century care
19 set out in the NHS Long-Term Plan[4,5]. AHPs are a diverse group of professionals
20 who provide various high-quality care across health and social care pathways. About
21 230,000 AHPs in 14 professions (including paramedics, physiotherapists,
22 occupational therapists, and dieticians, among others) worked independently across
23 the spectrum of care from primary to specialist care provision in the UK in 2021[6].
24 Recently, there has been a decline in previous achievements to increase the FTE
25 number of allied health professionals in the UK[7]. A similar trend is seen across the
26 NHS workforce, including the nursing staff.
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36 The Nursing and Midwifery Council's register recorded that 6.5% of nurses left the
37 register between 2012 and 2013[8]. Most of those who left were of active service age;
38 only 1.2% of registered nurses left due to retirement. However, nurses quitting rates
39 may be underreported given that some leave work while still registered, and some take
40 up shift jobs within the NHS away from direct clinical care[9].
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46 Studies have identified structural factors implicated in nurses/AHP workforce
47 recruitment and retention. For instance, pay level has been reported as important in
48 nurses/AHP workforce retention[10]. An interplay exists between the cost of living and
49 nurses/AHP workforce recruitment and retention in the UK. For example, the Royal
50 College of Nursing members in England, Northern Ireland and Wales held strike
51 actions in late 2022 and early 2023 on pay dispute, worsened by the current cost of
52 living crisis[11].
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3 Evidence from UK studies suggests that the COVID-19 pandemic further exacerbated
4 nurses/AHP workforce recruitment and retention issues. COVID-19 infection among
5 frontline staff, difficult working conditions, increased workload, and burnout are
6 reported COVID-19-related factors exacerbating healthcare workforce challenges[12–
7 14].
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12 Despite the focus and investment by the Department of Health and Social Care in the
13 workforce[15,16], there remain considerable challenges in filling the roles required
14 across both sectors to meet the demands. Many approaches have been explored to
15 provide the most appropriate solutions; however, overwhelming challenges must be
16 overcome to improve staff retention across Integrated Care Systems.
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22 Recruitment and retention issues affect different aspects of health and care services.
23 A high turnover and shortage of nurses and AHPs impact care quality, patient
24 outcomes, and the cost of healthcare delivery[2,17,18]. Studies have shown that a
25 crucial time for the turnover of nurses is during the first year post-qualification[3,19,20].
26 Psychological issues, including anxiety and stress due to work pressure in the early
27 days of work, are common reasons for quitting among newly qualified nurses
28 (NQNs)[21]. Some studies suggest that professionals, such as nurses, often feel ill-
29 prepared for their roles and quit their profession; lack of self-confidence has been
30 implicated in performance rate, stress levels, and the difference between expectations
31 and reality[22]. Negative experiences during clinical placements, such as a safe
32 learning environment and lack of health and well-being support from colleagues, can
33 also influence NQNs negatively[23]. Understanding the organisational practice
34 environment importance in NQNs' decision on employment within the sector is
35 essential in reducing turnover and increasing retention.
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47 Compared to retention, there is a lack of studies focusing on the factors affecting the
48 recruitment of nurses and AHPs. These few studies mostly focus on international
49 recruitments. For instance, according to a report by Nuffield Trust, the pull factors for
50 moving and working as a nurse in the UK include better pay, career opportunities,
51 improved working conditions, and long-term financial stability[24]. In terms of factors
52 affecting the recruitment of AHPs, a scoping review revealed that the opportunity to
53 help people was a key motivation compared to financially based motivations. The
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3 same study also identified the lack of awareness of the profession as the main barrier
4 to choosing a career in AHP[25].
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8 With the emergence of integrated care systems (ICS) in England, there is an
9 increasing need to upskill and consolidate services across systems to provide
10 enhanced integration of health and social care rather than just individual
11 institutions[26]. In addition, given the unprecedented challenges facing the NHS,
12 systems need healthcare professionals to work differently to meet the needs of the
13 growing number of people with complex and long-term conditions, many of whom rely
14 on care and support from different services[26]. An appropriate number of the multi-
15 professional healthcare workforce is needed to deliver the required care.
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19 Although studies have suggested strategies, such as leadership initiatives[27]
20 improvements in technology[28], and incentives[29], to address workforce recruitment
21 and retention challenges, a gap still exists in the understanding of individual
22 organisations' root cause of these deficiencies or insight as to how they relate to each
23 other or how organisations go about implementing the appropriate strategies to
24 manage and sustain the quality-of-care delivery.
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28 Advancing an understanding of the elements that provide an environment for growth
29 and job satisfaction among nurses and AHPs will inform innovative strategies to recruit
30 and retain healthcare workers in the UK. In addressing this, the proposed study will
31 adopt an exploratory mixed-method approach in investigating healthcare workforce
32 recruitment and retention in two ICS in the East Anglia region of England. Partnering
33 with local providers, Higher Education Institutions (HEIs), NHS, and nursing and AHPs
34 staff, we will explore elements of organisational practice environments that contribute
35 to recruitment and retention in the Suffolk and North-East Essex (SNEE) ICS and the
36 Norfolk and Waveney (NW) ICS.
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39 40 41 42 43 44 45 46 47 48 49 50 51 *Research questions*

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53 • What factors affect healthcare recruitment, and retention in the United
54 Kingdom?
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56 • What elements of organisational practice environments are associated with the
57 intention to take up employment in healthcare among newly qualified
58 professionals in the East Anglia region?
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- 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 United Kingdom 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 one year of employment post-qualification; healthcare professionals with more

than one-year post-qualification 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 Allied health professionals 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].

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

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

P=Proportion of sample

MOE= Margin of error

N=Population size

$$Z_{-(\alpha/2)} = 1.96$$

Calculation:

$$N \text{ (Population size)} = 12,500$$

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

$$P=0.5 \text{ for a conservative estimate.}$$

$$\text{MOE}=0.05 \text{ for a 5\% margin of error.}$$

$$X=(1.96)^2 \times 0.5 \times (1-0.5) / (0.05)^2$$

$$X=384.16$$

$$\text{Sample Size} = 12,500 \times 384.16 / (384.16 + 12,500 - 1)$$

$$\text{Sample Size} \approx 372.39$$

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

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3 An online survey will be launched in the second half of 2023 to collect data from newly
4 qualified and established nurses and Allied Health professionals on organisational
5 practice environments implicated in their job recruitment and retention. The survey link
6 will be live for three weeks. The questionnaire will be hosted online at Questionpro[33],
7 restricting access to one response per device. The survey link will be primarily
8 distributed through gatekeepers (practice educators working in organisations within
9 the ICBs, these organisations will include: East Suffolk & North East Essex NHS
10 Foundation Trust (ESNEFT), West Suffolk NHS Foundation Trust (WSFT), Norfolk &
11 Norwich University NHS Foundation Trust (NNUHT), Norfolk & Suffolk Foundation
12 Trust (NSFT), Norfolk Community Health and Care NHS Trust (NCH&C), and East
13 Coast Community Healthcare (ECCH),) via email correspondence. Reminders and
14 constant communications with gatekeepers to follow up on non-responders will be
15 used to reduce the risk of attrition bias in the survey.
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26 *Measurement instrument*

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

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

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3 The SCORE survey assesses the perception of employees/employers about their
4 organisation. It includes 73 items measuring 12 domains constituting three subscales:
5 Safety Culture, Work-Balance, and Engagement and Burnout; the instrument has
6 good internal reliability ranging from $\alpha=0.82$ to $\alpha=0.94$.
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11 These scales have been used in organisational psychology field to show the
12 relationship between turnover intention and job satisfaction, organisational
13 commitment, and social support [36–38]. We obtained written permissions to use both
14 scales from the developers.
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19 The adapted questionnaire for the proposed study, which contains 88 items, will be
20 self-administered (see appendix 1 for a sample of the questionnaire). To ensure
21 validity following adaptation, the questionnaire will be piloted using 10 participants who
22 meet the inclusion criteria. We will aim to capture a representative and inclusive range
23 of perspectives in our study. This will enable us to deliberately include voices from
24 various demographic categories, such as age, gender, ethnicity, qualification, area of
25 practice, and geographical location. The pilot study will consider respondents'
26 perception of the questions, question construct (including the appropriateness of the
27 format and wording of questionnaires), and the questionnaire's ability to collect
28 relevant data to answer research questions 2 and 3.
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36 37 *Variables*

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39 The predictors will be variables on opportunities for growth and advancement,
40 workload, teamwork climate, participation in decision-making, and burnout climate (all
41 Likert scale measures) as indicators of organisational practice environments. The
42 outcome variables will differ for the separate models to test RQs 2&3. For RQ2, the
43 outcomes will be variables on the intention of newly qualified healthcare practitioners
44 to take up or stay in new employment; while for RQ3, the outcomes will include a
45 continuous variable on the number of years established healthcare professionals have
46 remained in employment/practice, intention to leave their current practice and job
47 satisfaction. Confounders will include participant age, gender, ethnicity, qualification,
48 area of practice, and geographical location.
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57 58 *Handling missing data*

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3 The rate of missing values in the dataset will be assessed to determine the pattern of
4 missingness. Suppose values are missing at random (that is, participant
5 characteristics do not determine missingness), we will conduct a multiple imputation
6 to minimise bias and retain all observed values in the dataset[39]. Results will be
7 averaged across ten imputed datasets.
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10 11 12 *Statistical analysis*

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15 To explore the relationships in RQs 2&3, we plan to conduct separate multi-level linear
16 regression models for each outcome variable: newly qualified staff intention to stay
17 and established staff retention. In these models, we aim to examine their association
18 with various organisational practice environment measures, including opportunities for
19 growth and advancement, workload, teamwork climate, participation in decision-
20 making, and burnout climate. Additionally, we will control for potential confounding
21 variables, such as age, gender, ethnicity, qualification, area of practice, and
22 geographical location.
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29 30 Assumptions about Variables:

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33 1. Linearity: We will assume a linear relationship between the predictor variables
34 (organisational practice environment measures (measured as scale variables)
35 and age (confounder)) and the outcome variables (staff intention to stay and
36 staff retention, measured as scale variables).
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41 2. Independence of Errors: We will assume that the errors of the regression model
42 are independent of each other.
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46 3. Homoscedasticity: We will assume constant variance of the errors across all
47 levels of the predictor variables.
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51 4. Normality of Residuals: We will assume that the residuals of the regression
52 model are normally distributed.
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54 To ensure the reliability of our results, we plan to adhere to the general guideline of
55 having a minimum of 10 to 20 cases per predictor variable. Given the number of
56 predictor variables in our models, our target sample size exceeds this minimum
57 threshold.
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3 All analyses will be performed on Stata statistical software version SE 17.
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6 *Sensitivity analysis*

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8 To ensure the imputation of missing values does not introduce bias in the dataset, a
9 complete case analysis will be conducted to test for consistency with the results from
10 the main analyses with the imputed dataset.
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14 **Phase 2: Qualitative strand**

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16 *Procedure*

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

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41 Newly qualified and established nurses, allied health professionals, and senior leaders
42 within the NHS ICBs, including education and workforce leads with experiences
43 relevant to the study, will be purposively sampled[40]. We will recruit newly qualified
44 staff members which will help us to better understand the experience of transition from
45 a student (pre-employment) to employment. The characteristics of the interview
46 participants will be informed by the survey results, ensuring those reporting specific
47 experiences in the survey are interviewed for interpretation and clarification. The
48 nurses and allied health professionals will be drawn from those who agreed to
49 participate in the semi-structured interviews when they completed the initial
50 questionnaire.
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3 The experiences and perspectives of participants will be explored until saturation is
4 achieved[41]. We anticipate achieving saturation within 20 interviews based on the
5 sufficient information power suggestion[42].
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9 *Data collection*

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11 Semi-structured interviews will be conducted to explore and compare the experiences
12 of healthcare professionals and senior leaders within different organisations on
13 supporting, developing, securing and retaining the healthcare workforce. Given the
14 sequential explanatory mixed methods design, interview questions cannot be finalised
15 at this stage as these will depend on the survey results.
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22 The interviews will be conducted in English via a virtual platform or face-to-face,
23 depending on the participants' preferences, by three researchers (EA, NC and PA)
24 with extensive experience in conducting qualitative interviews.
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28 *Data analysis*

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30 Interview audio records will be transcribed verbatim and analysed alongside any field
31 notes using the thematic analysis method. Inductive coding and analysis will be
32 conducted per Braun & Clarke's recommendations to generate key themes from the
33 interview data[43]. With the inductive approach to coding, we expect emerging codes
34 to be strongly related to the dataset, identifying new concepts and constructs
35 therein[44]. Themes will be developed from clusters of linked codes of similar construct
36 and meaning. Codes will be considered for relevance and how they connect and
37 interact with one another. The data will be interpreted at different levels: within and
38 between individual interviews (data units). Emerging themes will be frequently
39 discussed among the research team and collaborators in the project. To ensure
40 trustworthiness and rigour of the data collection, we will share the raw transcripts with
41 the participants and seek their feedback to validate the accuracy and interpretation of
42 their responses. We will also incorporate the Consolidated Criteria for Reporting
43 Qualitative Research (COREQ) into our methodology[45]. This 32-item checklist for
44 interviews and focus groups provides a robust framework for reporting qualitative
45 research methods, ensuring transparency and methodological rigor. By adhering to
46 the COREQ guidelines, we aim to strengthen the credibility, transferability,
47 dependability, and confirmability of our qualitative research findings. Finally, we will
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3 maintain consistency in coding by establishing clear definitions, and regular team
4 meetings to resolve coding discrepancies.
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7 The NVivo software will be used to facilitate the interview data analysis.
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10 **Patient And Public Involvement:** None
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13 **Planned Start and End Date:** 31st January-2024-31st January 2025
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16 **DISCUSSION**

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18 Studies of other populations have reported some organisational practice environment
19 factors associated with securing and retaining the healthcare workforce. For example,
20 a recent study in Ghana showed that the work practice environment, including nurse-
21 physician relations and nurse-manager leadership, affected registered nurses'
22 turnover intention, and the burnout level of nurses mediated this[46]. Smokrović et al.
23 found that job satisfaction and absenteeism were the direct predictors of turnover
24 intention in a Croatian registered nurse population[47]. They also showed that
25 amotivation, identified regulation, intrinsic motivation, and nurse manager ability,
26 leadership and support of nurses were indirect predictors of turnover intention
27 mediated by job satisfaction. Another crucial organisational practice environment
28 factor in workforce recruitment identified in the existing literature is support for newly
29 qualified staff[48,49]. These findings demonstrate the need to understand how
30 organisational practice environments shape staff experiences and employment
31 decisions. Our proposed study will provide new insight into how region-specific
32 organisational factors could affect the recruitment and retention of the health
33 workforce.
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47 Based on our results, we will develop a conceptual framework to visually present the
48 relationship pathways between the organisational practice environment and
49 healthcare recruitment and retention. The framework will show how organisational
50 structures interact in influencing outcomes; this will be a valuable resource for
51 designing strategies to address current issues with the healthcare workforce in the
52 East Anglia region.
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58 *Ethics, data management and dissemination*
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3 The proposed study has been approved by the University of Suffolk Research Ethics
4 Committee (approval number RETH(S)22/051). Before participating in both phases
5 of the study, participants will be provided with an information sheet, and written
6 informed consent will be obtained. Confidentiality will be assured to all participants
7 throughout the study. All data will be anonymised. Interview and survey data will be
8 securely stored on a password-protected device accessible to only the research
9 team. After five years following the final day of the study, all data copies will be
10 securely deleted or shredded.
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18 While the project leadership and research governance will be undertaken by two
19 authors who are experienced academic leads based at the University of Suffolk (PA
20 and NC), strategic oversight will be provided by a steering group of workforce leaders
21 across the SNEE and NW ICS'.
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26 Findings from our work will be disseminated through publications in peer-reviewed
27 journals; presentations at stakeholders' events, professional and academic
28 conferences; and short reports for stakeholders, including participating ICSs.
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32 Our study does not require an Integrated Research Application System/Health
33 Research Authority (IRAS/HRA) approval as it primarily involves interviews and
34 surveys with NHS staff which does not include any clinical interventions, patient data,
35 or direct access to patient records. On the contrary, our focus is on the staff's
36 experience working in healthcare organisation. Given the non-clinical nature of our
37 study and the absence of patient-related data, our research is considered low risk
38 and falls within the category of service evaluations or staff-related studies, which
39 typically do not require IRAS/HRA approval. In addition, we have also run the "Do I
40 need NHS REC review algorithm" with details of our study, and the system also
41 confirmed that an NHS ethics approval is not needed for the study.
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50 *Acknowledgments*

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53 We would like to acknowledge Health Education England and the steering committee
54 members (Dr Paul Driscoll-Evans and Professor Lynne Wigens).
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57 *Author contributions*

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3 Study Design: EA, PA, NB. Proposal Preparation: EA, PA, NB. Prior to submission,
4 all authors read and have given approval for the final manuscript.
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7 *Funding*

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10 This study was funded initially by Health Education England (RD22061) now merged
11 with NHS England.
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14 *Competing Interest*

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17 None declared.
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20 *Ethics Approval*

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

***Most of items removed because of the Copyright Issue.**

Study title: Securing and retaining a local workforce: An exploration of the elements that provide an environment for growth across two integrated health systems

Instruction: The questionnaire is divided into three sections. All questions are multi-choice; please choose the response that best applies to you and your experience

Section 1: Demographics

This section asks demographic questions.

1) Please indicate your professional qualification

- a. Certificate
- b. Undergraduate
- c. Postgraduate
- d. PhD
- e. Other
- f. NA

2) To which staff group do you belong?

- a. Nursing/Midwife (NMC Registered)
- b. Nursing/Midwife (N/As HCA, SHCA, Student, etc.)
- c. Qualified AHP (Art therapists, Drama therapists, Music therapists, Podiatrists, Dietitians, Occupational therapists, Operating department practitioners, Orthoptists, Osteopaths, Paramedics, Physiotherapists, Prosthetists and orthotists, Radiographers, Speech and language therapists, etc.)
- d. Senior Manager
- e. Other
- f. NA

3) What is your gender?

- a. Male
- b. Female
- c. Rather not say
- d. Other

4) What is your age?

.....

5) What is your ethnicity?

- a. Asian
- b. Black British
- c. Black or African American
- d. Caucasian or White
- e. Multiracial
- f. Native Hawaiian or Other Pacific Islander

- 1
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3 g. White British
4 h. Other
5 i. Prefer not to say
6
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8 **6) What is the highest level of education you have completed?**

- 9 a. CSE
10 b. OLevel
11 c. GCSE
12 d. A Level
13 e. Bachelor's degree
14 f. Master's degree
15 g. Doctoral degree
16 h. Other
17 i. NA
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21 **7) Which nursing field would you like to work in (for newly qualified nurses only)?**

- 22 a. Adult nursing
23 b. children's nursing
24 c. learning disabilities nursing
25 d. mental health nursing
26 e. Other
27 f. NA
28
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30 **8) Which nursing field do you work in (for established nurses only)?**

- 31 a. Adult nursing
32 b. children's nursing
33 c. learning disabilities nursing
34 d. mental health nursing
35 e. Other
36 f. NA
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40 **9) Which region do you work in?**

- 41 a. East of England
42 b. London
43 c. Midlands
44 d. North East and Yorkshire
45 e. North West
46 f. South East
47 g. South West
48 h. Other
49 i. NA
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53 **10) How many years of experience do you have in your field?**

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Section 2: Turnover intention scale (TIS)

This section explores your experience of your current job and the extent to which you intend to stay at the organisation. Please read each question and indicate your response using the scale provided:

During the past 9 months...

1	How often have you considered leaving your job?	Never	1-----2-----3-----4-----5	Always
2	How satisfying is your job in fulfilling your personal needs?	Very satisfying	1-----2-----3-----4-----5	Totally dissatisfying
3	How often are you frustrated when not given the opportunity to achieve your personal work-related goals at work?	Never	1-----2-----3-----4-----5	Always
4	How often are your personal values at work compromised?	Never	1-----2-----3-----4-----5	Always
5	How often do you consider getting another job that suits your needs better?	Never	1-----2-----3-----4-----5	Always
6	How likely are you to accept another job at the same compensation level should it be offered to you?	Highly unlikely	1-----2-----3-----4-----5	Highly likely
7	How often do you look forward to another day at work?	Always	1-----2-----3-----4-----5	Never
8		Never	1-----2-----3-----4-----5	Always
9R		To no extent	1-----2-----3-----4-----5	To a very large extent
10R		To no extent	1-----2-----3-----4-----5	To a very large extent
11		Never	1-----2-----3-----4-----5	All of the time
12		To no extent	1-----2-----3-----4-----5	To a very large extent
13R		To no extent	1-----2-----3-----4-----5	To a very large extent
14	How frequently do you scan the internet or other sources for alternative job opportunities?	Never	1-----2-----3-----4-----5	All of the time

Section 3: Assessment of your work setting Safety, Communication, Operational Reliability, and Engagement (SCORE)

You will be asked questions on organisational practice environment, your specific unit or clinical experience and expertise. Choose your responses using the scale below:

A	B	C	D	E	X
Disagree Strongly	Disagree Slightly	Neutral	Agree Slightly	Agree Strongly	Not Applicable
Improvement Readiness (Practice Environment)					
The practice environment in this work setting utilises input/suggestions from the people who work here.					
A	B	C	D	E	X
The practice environment in this work setting effectively fixes defects to improve the quality of what we do.					
A	B	C	D	E	X
The practice environment in this work setting allows us to gain important insights into what we do well.					
A	B	C	D	E	X
The practice environment in this work setting is protected by our local management.					
A	B	C	D	E	X
Local Leadership					
In this work setting, local management is available at predictable times.					
A	B	C	D	E	X
In this work setting, local management communicates their expectations to me about my performance.					
A	B	C	D	E	X
Burnout Climate and Personal Burnout					
Events in this work setting affect the lives of people here in an emotionally unhealthy way.					
A	B	C	D	E	X
Teamwork Climate					
Disagreements in this work setting are appropriately resolved (i.e., not <i>who</i> is right, but <i>what</i> is best for the patient).					
A	B	C	D	E	X
In this work setting, it is difficult to speak up if I perceive a problem with patient care.					
A	B	C	D	E	X
It is easy for personnel here to ask questions when there is something that they do not understand.					
A	B	C	D	E	X

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3	The people here from different disciplines/backgrounds work together as a well-	A	B	C	D	E	X		
4	coordinated team.								
5									
6									
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10									
11	Safety Climate								
12	My suggestions about quality would be acted upon if I expressed them to management.	A	B	C	D	E	X		
13									
14									
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23									
24	Regarding growth opportunities in this work setting, I have ...								
25	opportunities for personal growth/development.	A	B	C	D	E	X		
26									
27									
28									
29									
30									
31	influence in decisions about work activity timelines.	A	B	C	D	E	X		
32									
33	Regarding the workload in this work setting, I have ...								
34	too much work to do.	A	B	C	D	E	X		
35									
36									X
37									X
38									X
39									X
40									X
41									
42	Regarding participatory decision-making at work ...								
43	the decision-making process is clear to me.	A	B	C	D	E	X		
44	it is clear to whom should address specific problems.	A	B	C	D	E	X		
45	I can discuss work problems with my direct supervisor/ physician leadership.	A	B	C	D	E	X		
46	I can participate in decisions about the nature of my work.	A	B	C	D	E	X		
47									
48	I have a direct influence on my organisation's decisions.	A	B	C	D	E	X		
49									
50	Regarding job-related uncertainty about the future in this work setting ...								
51	I am certain I will still be working here in one year.	A	B	C	D	E	X		
52	I am certain I will keep my current job next year.	A	B	C	D	E	X		
53	I am certain that I will keep the same functional level as currently.	A	B	C	D	E	X		
54									
55	Regarding advancement in this organisation...								
56	I can live comfortably on my pay.	A	B	C	D	E	X		
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2									
3	this organisation pays good salaries.	A	B	C	D	E	X		
4									
5	I am paid enough for the work I do.	A	B	C	D	E	X		
6									
7									
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11									
12	With respect to my intentions to leave this organisation								
13									
14	I would like to find a better job.	A	B	C	D	E	X		
15	I often think about leaving this job.	A	B	C	D	E	X		
16									
17	I have plans to leave this job within 1 yr.	A	B	C	D	E	X		
18									

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21 *During the past week, how often did this occur?*

A	B	C	D	X
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of time (3-4 days)	All of the time (5-7 days)	Not Applicable
Skipped a meal	A B C D X	Had difficulty sleeping	A B C D X	

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