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(REVIEW ARTICLE)

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Improving staff retention in the research and development department sections of NHS hospitals in the United Kingdom: A systematic review

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Abstract

Background*:* This study undertook a comprehensive examination of the imperative task of improving staff retention within the National Health Service (NHS) Research and Development (R&D) sector in the UK. The motivation stemmed from the observed decline in staff retention over the years, posing a significant threat to the continuity of healthcare research and innovation.

Aim*:* The primary objective of this systematic review was to elucidate impactful measures aimed at enhancing staff retention within NHS R&D. The study recognized the critical role of sustained staff commitment in preventing disruptions to research projects, ensuring efficient resource utilization, and maintaining the retention of crucial knowledge, research quality, and impact. The overarching aim was to mitigate the potential hindrances to the progress of medical advancements.

Method*:* Conducted as a systematic review, the study employed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) reporting checklist. The research followed the Population, Intervention, Comparison, Outcome (PICO) format to frame research questions systematically. A meticulous search and screening process was employed to identify relevant studies, and data synthesis methods were utilized to draw meaningful conclusions from the selected literature.

Conclusion*:* The study concluded by emphasizing the critical need to address staff retention issues within NHS R&D sections. The systematic review supported a comprehensive and tailored approach, urging the NHS to invest in its researchers, create a supportive work environment, and prioritize the physical and mental well-being of staff. By implementing these evidenced-based strategies, the NHS can effectively enhance the retention of its research talent, thereby fostering ongoing healthcare innovation and improvement. The findings presented in this study contribute to a detailed understanding of staff retention issues within R&D sections, providing a valuable foundation for future initiatives in this crucial domain.

Keywords: Staff retention; NHS UK; Research; Development

1. Introduction

The National Health Service (NHS) in the United Kingdom, established in 1948, is a publicly funded healthcare system with a global reputation for its size and excellence [1]. Funded primarily through taxation, it provides free healthcare services to all residents, embodying the fundamental principle of universal coverage regardless of ability to pay or immigration status.

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The NHS places a strong emphasis on quality and safety in healthcare delivery [2]. Financed through taxation, most services are free at the point of delivery, ensuring financial barriers don't impede access to necessary care. Regulatory bodies oversee quality assurance, and the NHS provides both long-term support for chronic conditions and emergency care through services and the NHS 111 helpline.

The NHS collaborates with universities and research institutions to pioneer new treatments, drugs, and medical technologies, significantly contributing to medical advancements and clinical trials [2]. Despite these contributions, the Research and Development (R&D) sections of the NHS face challenges, particularly in staff retention, impacting the quality and output of healthcare services [1].

Poor staff retention in NHS R&D has profound implications for healthcare and innovation. It leads to a loss of expertise, hindering ground-breaking research and impeding the translation of findings into clinical practice [1]. The lack of a stable and skilled research workforce poses challenges in keeping pace with emerging medical advancements and the evolving healthcare landscape.

Addressing these challenges is crucial for maintaining the NHS's leadership in healthcare innovation. Solutions involve improving career opportunities, financial incentives, and fostering a supportive work environment that recognizes achievements and values research professionals' contributions [1]. Aligning national policies with the unique needs of the R&D section is essential for creating an environment conducive to staff retention and advancement in healthcare.

While direct studies on this specific topic may be limited, insights can be drawn from existing research and reports to highlight potential impacts. This study emphasizes the importance of addressing staff retention challenges to sustain the NHS's position as a leader in healthcare innovation and research.

2. Research Method

The imperative examination of enhancing staff retention within the Research and Development (R&D) sector of the National Health Service (NHS) in the United Kingdom holds crucial importance. This study explores the impact of a robust R&D unit in the context of the NHS UK [15].

The approach adhered to the framework proposed by Pollock et al. (2018), utilizing the Population, Exposure, and Outcome (PEO) framework [15]. The literature search encompassed electronic databases such as PubMed, ResearchGate, MEDLINE, and ZENDY, covering the period from 2010 to 2023 [15]. Medical subject headings and keywords related to 'retention,' 'research,' and 'development' were employed in the search [15].

The selection of databases was deliberate, emphasizing medical databases due to their relevance to the subject matter [16]. Inclusion and exclusion criteria, aligned with the PRISMA process (Page et al., 2021), were systematically applied during the screening and selection of literature [16]. The Critical Appraisal Skills Programme (CASP), as per CASP (2023), was utilized for the critical analysis of a subset of the literature [16]. Microsoft Excel facilitated the organized retrieval of data for each selected article [16].

Narrative synthesis, following the methodology outlined by Lisy et al. (2016), was employed for data extraction [12]. This process ensured a comprehensive approach to synthesizing the gathered information.

Table 1 Inclusion/Exclusion Criteria

S/N	PICO	Inclusion Criteria	Exclusion Criteria
Population (P):	staff working in the Research and Development (R&D) sections of the National Health Service (NHS) in the United Kingdom	Studies conducted with staff employed in the Research and Development (R&D) sections of the National Health Service (NHS) in the United Kingdom.	Studies conducted outside the NHS in the United Kingdom or in settings other than R&D sections.

Intervention (I):	This component describes the intervention or treatment you are considering to address the issue. In this context, the intervention could be any strategy, program, or initiative aimed at improving staff retention in the R&D sections of the NHS UK. For example, it could involve implementing mentorship programs, professional development opportunities, or other retention strategies..	Studies that investigate interventions, strategies, or programs explicitly designed to improve staff retention. This can include but is not limited to, mentorship programs, training initiatives, work-life balance interventions, professional development opportunities, and any other Retention-focused interventions.	Studies that do not focus on interventions explicitly designed to improve staff retention. Studies where the intervention is Not clearly described.
Comparison (C):	No comparison	Study Design: Peer-reviewed primary research studies, including randomized controlled trials (RCTs), quasi-experimental studies, observational studies, and other study designs reporting quantitative or qualitative data.	Study Design: Non-peer-reviewed studies, conference abstracts, reviews, editorials, and commentaries. Studies with a high risk of bias or methodological flaws.
Outcome (O):	Outcome is improved staff retention within the R&D sections of the NHS UK. This could be measured through retention rates, employee satisfaction surveys, or other relevant indicators.	Outcome Measures: Studies that report on outcomes related to staff retention, such as retention rates, employee turnover, job satisfaction, and Other relevant indicators.	Outcome Measures: Studies that do not report relevant outcomes related to staff retention
Time (T):	In this research, use 10 years, up to 2023.	Publication Language and Date: Studies published in the English language. Studies done in the last 10 years, to capture a comprehensive range of studies.	Publication Language and Date: Studies published in languages other than English. Studies published before the last 10 years

Table 2 Summary of Database Query Strategy

SS/N	PICO	Research Definition	Search Terminology
#1	Population	Staff retention research and development (R&D) section of NHS UK.	"Staff retention in R&D NHS UK" OR "staff retention in NHS"
#2	Intervention	Organizational culture, employee engagement, pay and compensations, employees training and opportunities the competitive landscape, and regulatory considerations.	"Competitive salaries and compensation" OR "Career Development and Training"
#3	Outcome	Improved staff retention, a more skilled workforce, innovation, cost savings, an enhanced reputation, advanced health care and a positive impact on healthcare.	"a positive impact on healthcare" OR " quality health care" OR " Improved staff retention And more skilled workforce"
	Comparison	There is no comparison against.	none
44	PICO		#1 AND #2 AND #3

2.1. General discussion of research philosophy & methodology

A systematic review serves as a valuable method for condensing extensive data obtained from primary literature, offering a rigorous and structured approach to evaluate and synthesize all pertinent research on a specific topic [18]. The transparency and well-documented nature of this review process facilitate replication and verification by others, contributing to the reliability of the evidence [18] (Moher et al., 2015).

By utilizing predefined criteria and methods for study selection and data extraction, systematic reviews minimize the risk of bias and subjectivity in the review process [19] (Higgins et al., 2011). The overarching goal is to locate, evaluate, and summarize empirical data that align with pre-established criteria to address a specific research issue [19] (BMJ, 2022).

Researchers conducting systematic reviews employ specific and replicable techniques to reduce biases and generate reliable findings for informed decision-making [21] (Munn et al., 2018). However, systematic reviews are not without limitations. They may be susceptible to publication bias, relying on published studies and potentially excluding unpublished or negative results [22] (Egger et al., 1997). Language restrictions and database choices may also limit the inclusivity of relevant studies [23] (Morrison et al., 2012).

This study employs a qualitative research approach within the systematic review, aiming to present general knowledge regarding the improvement of staff retention in the Research and Development (R&D) department sections of the NHS in the United Kingdom [24]. Qualitative research, treating each participant as an autonomous actor, focuses on the "why," "what," and "how" of a phenomenon [25] (Palmer and Bolderston, 2006). It offers flexibility, capturing perspectives, experiences, and contextual understanding [26-27] (Merriam, 2009; Denzin & Lincoln, 2018).

While qualitative data provides flexibility and adaptability, allowing for modification of approaches and exploration of unexpected avenues, it has inherent weaknesses. The subjectivity of interpretation may introduce bias, influencing findings [28] (Maxwell, 2013). Additionally, small, non-representative samples can pose challenges in generalizing findings to broader populations [29] (Creswell & Creswell, 2017).

In conclusion, the use of a qualitative research approach within the systematic review allows for a deep exploration of staff retention in the NHS's R&D, considering individual perspectives and contextual factors. The study recognizes the flexibility offered by qualitative data while acknowledging its inherent limitations.

2.2. Project research design, methodology, Search strategy &Inclusion &Exclusion criteria

The systematic review in this study employed the PEO (population, exposure, and outcome) framework, which was discussed in Pollock (2018). The PEO framework encourages researchers to clearly define the population of interest, the specific exposure or intervention, and the desired outcomes. [33] This precision ensures that the search strategy targets only studies that are directly relevant to the research question (Booth et al., 2012).

The following are the search keywords for this component: Population: The search words used for this component determine the location that will be investigated. The location, group, and other characteristics of this population may or may not be present. The cohorts being investigated in this instance are the staff in research and development sections. Exposure is the phrase used to define the kind of occurrence that happened in the population for this component. The Outcome is the predicted result that should be visible, measurable, or detectable in the population under observation. [34] Based on its potential for usage in primary articles that apply a qualitative research approach, the PEO framework was chosen for the observational studies evaluation (Pollock and Berge, 2018). [34] Based on the research perspective that this systematic review gave, the framework for primary articles was used (Pollock and Berge, 2018). In this systematic review, a predetermined database query strategy was created using the PEO framework to find and obtain literature from the chosen databases. The database query procedure was uniform, systematic, and repeatable because to the PEO-driven predetermined search strategy (Pollock and Berge, 2018) the criteria for including and excluding the retrieved articles were created using the PEO framework, search keywords, and phrases. The most effective instrument in influencing various aspects of this review technique was the PEO framework (Pollock and Berge, 2018).

Pertinent literature in all the EBSCO e-bases (PubMed, Research Gate, Zendy, Medline etc.) were sought for and a wide range of them on addressing staff retention issues in NHS R&D sections is not only necessary but essential for the sustainability and effectiveness of healthcare research and innovation. A stable and experienced workforce is critical for maintaining the quality of research projects, efficiently using resources, and attracting top talent, all of which contribute to better healthcare outcomes and a positive organizational reputation. [21]The Boolean Algebra, word truncation, and categorization of search

terminology based on the PEO framework were used to optimize the search (Munn et al., 2018). Each PEO subgroup's search results were expanded using the "OR" Boolean Algebra, Boolean algebra is a fundamental concept in computer science and digital electronics. It is a mathematical framework that deals with binary values, typically represented as 0 and 1, and the operations that can be performed on these values.In the context of Process, Environment, and Output (PEO), Boolean algebra was applied as logical operation, “OR” It returns true (1) if at least one of the input values is true (1). In PEO, it provides a foundation for defining and analyzing logical processes and their interactions with the environment to produce specific binary outputs.[21] These expressions can describe conditions, decision-making processes, and logical relationships in digital systems. The subgroupings were joined using the "AND" terminology to provide search results that included at least one PEO search phrase from each subgroup (Munn et al., 2018). As described in the next section of this study, database result filters were also employed to further limit the search results in addition to the inclusions/exclusions.

[16] In the screening process, the title/abstract and then the full article were read and the screening and selection process was utilized once the record was collected to make sure that only studies that matched the inclusion/exclusion criteria were included. To make sure that the studies were pertinent to the research issue, the PEO framework was employed in conjunction with the screening and selection process (Page et al., 2021). [16] This reduced reviewer bias and made it possible to include those papers that had a direct bearing on the research issue (Page et al., 2021). PRISMA, the preferred reporting item for systematic reviews and meta-analyses, served as the basis for the article screening and selection procedure (Page et al., 2021).

2.3. Critical Appraisal

[32] A critical evaluation and quality assessment of certain papers were also included in the systematic review (Chen, 2017). [30] This procedure involved evaluating how well the publications adhered to the necessary methodological rigor (Chen, 2017). The CASP instrument, a commonly used technique for assessing the caliber of a research project, was used for this assessment. The rigor applied in the execution of various areas of the original research article is evaluated by the CASP tool using ten questions. CASP tool was used among other tools due to its benefits which includes organization of and management of large volume of literature by organizing studies based on criteria, facilitating a more systematic and transparent approach to data analysis. Additionally, it identifies patterns, trends and gaps in the existing literature, enhancing the synthesis of evidence or a comprehensive review. While the critical appraisal skills programme (CASP) tools are widely used for systematic review or assessing study quality, they have some limitations. One limitation is that CASP tools may oversimplify complex meteorological issues, potentially leading to subjective interpretations. Additionally, the tool may not cover all relevant aspects of the study quality and their application can be time-consuming.

[35]A "yes", "no", or "can't tell" response was given in response to each question (CASP 2023). Finally, the responses to these questions reveal the methodological quality. For instance, items that have a low-quality rating (0–4 yes) out of 10 are considered such. High-quality articles (8–10) are rated as high-quality, whereas medium-quality articles (5-7) are rated as medium (CASP 2023).

2.4. Data Extraction and Analysis

[36] After being chosen, pertinent data was retrieved using Microsoft Excel from the chosen literature. Extracting pre-defined information from chosen articles and structuring it for additional analysis and synthesis is known as data extraction (Aromataris& Pearson, 2014). [36] The categories of data extraction include: Basic information such as author, year of publishing, and title of publication, study features which include the methodology, the aim, and the design. Study population and sampling such as sample traits, selection standards, and sample size, strategy for gathering data and finally research analysis, study findings, limitations, and recommendations for more research (Aromataris & Pearson, 2014).

[36] This planned extraction process assisted in lowering the potential for reviewer bias during the data processing. The narrative synthesis process was then used to assess the data that had been retrieved (Aromataris & Pearson, 2014). [36]The main component of the narrative synthesis process is the use of words and their meanings to summarize and draw logical conclusions from the studied material. However, this method's primary drawback is its extremely varied methodology. However, it is a suitable strategy for gathering and organizing data from multiple sources, as this systematic review calls for (Aromataris & Pearson, 2014).

2.5. Ethical Considerations

[37] Modern standards or evidence-based decision making in clinical care and public health still rely solely on eminence-based input when it comes to normative ethical consideration Mertz et al. (2016). Since this study is a systematic review, it solely makes use of secondary data from original publications that have been disseminated in the field's scholarly journals. As a result, it lessens any ethical issues that may come up with primary research. [32] In order to make sure that ethical

permission was acquired and any possible ethical difficulties were resolved, ethical considerations were nonetheless taken into account while included each main article in this review (Chen, 2017).

3. Results

3.1. Database Query and Literature Selection

The databases assessed for literature search include: PubMed, Research Gate, Zendy and Google scholar. The search strategy outlined above was used in the database query process, which yielded: 14 studies from Medline; 120 articles from PubMed, 549 articles from research gate, 930 from Google scholar and 56 articles from Zendy. The retrieved articles were further subjected to a careful selection process which comprises various stages.

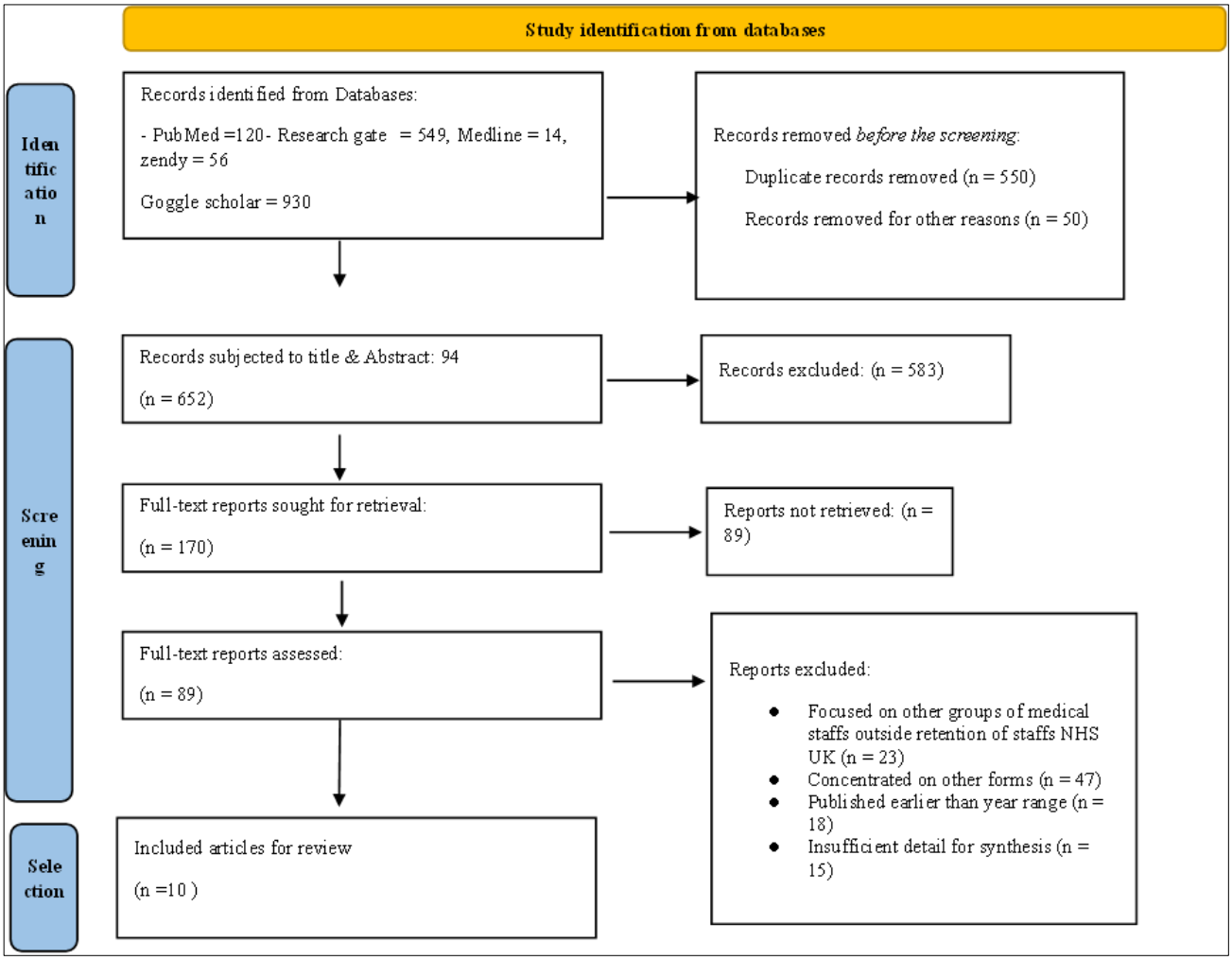

Figure 1 PRISMA flowchart diagram

A preliminary process was conducted using automated tools and filters in each of the databases for the purpose of eliminating duplicates and sorting the articles that needed to meet the inclusion criteria at generic level. The process eliminated 344 articles, with 1325 articles left. Afterwards, the articles left were screened for title and abstract conformity to the study objectives by reading through each article's title and abstract to ensure it is relevant to this review. This process produced 328 articles, eliminating a total of 997 articles with titles or abstracts that did not meet the inclusion criteria.

Thorough text screening was then carried out on the remaining articles 997. At this stage, the full text of each article was read through to determine suitability for inclusion, after which the non-suitable ones were eliminated. At this stage, a total of 975 articles were excluded due to payment restriction (i.e. a journal subscription amount of article fee was required before these articles could be accessed). Hence, they were removed from the selected articles, while other grey literature, as well as articles with study designs that do not conform with the inclusion criteria; such as articles that focused on

retention of junior doctors in NHS UK than retention of R &D staffs in NHS UK, or development and retention of R &D staffs in NHS UK. Likewise, articles which did not fulfill any of the inclusion criteria regarding period of publication, study design and region of interest were excluded.

A total of 10 articles, which meet the inclusion criteria for this review, were finally selected and included in this review. A graphical illustration of the screening and selection procedure is shown in the PRISMA flow diagram (Figure 4.1). The flow chart shows the selection process, as well as the retrieved number of articles, articles excluded at each stage and the number finally selected.

In addition, the details of extracted data are presented in Table 4.1, which represents a summary from the selected articles.

Table 3 Summary of Details from Selected Articles in Data Extraction Table.

Author(s)	**Title**	**Aim**	**Study Design**	**Country**	**Key Findings**
Beecroft Claire, Booth Andrew, Otter Mary Edmunds, Keen Christine, & Lynch Colin. (2009).	Supporting 'Best Research for Best Health' with best information. Health Information and Libraries Journal	Aimto explore the role o health libraries in supporting evidence based medicine, particularly the "best research or best health" strategy	Mixed method approach	United kingdom	Health libraries play a role in supporting "best research or best health" by providing access to information, evidence and resources; facilitating the dissemination o evidence
Bimpong KAA, Khan A, Slight R, Tolley CL, Slight SP. 2020	Relationship between labour force satisfaction, wages and retention within the UK National Health Service	To investigate the relationship the relationship between satisfaction, wages, and retention within the UK's National Health Service	Qualitative	United Kingdoms	Satisfaction with work was positively related to both retention and wages, while satisfaction with pay was only positively related to retention. This suggested that higher wages may help retain NHS staff, other factors such as satisfaction with work plays important role.
Cooksey, D. *A Review of UK Health Research Funding*. London: Stationery Office, 2006.	*A Review of UK Health Research Funding*. London: Stationery Office	To review the funding of health research in the UK and to make recommendation for the future	Literature review	United kingdom	UK is a leading nation I health research , but there are areas or improvement such as increasing collaboration between different sectors and improving the coordination of research funding
Dash, P., Gowman, N. & Traynor, M. Increasing the impact of health services research. *British Medical Journal* 2003.	Increasing the impact of health services research. *British Medical Journal*	To examine how health services research can effectively used to improve health care in UK.	Mixed method study	United kingdom	There is need for improved understanding of how research can be used to inform policy and practice, and there is a need or improved communication between researchers and policy makers. This study also

					found there is lack of resources for health services research and this is a barrier to its effective use.
Kirby Roger. (2020	Dealing with the NHS staff recruitment and retention crisis. Trends in Urology and Men's Health.	Ongoing crisis of staff retention and recruitment UK National Health Service	Literature review	United kingdom	Implication of the staff crisis or the NHS and the need or effective solutions.
Long J, Ohlsen S, Senek M, Booth A, Weich S, Wood E. 2022	Realist synthesis of factors affecting retention of staff in UK adult mental health services	to conduct a realist synthesis to explore evidence from published studies, together with stakeholder involvement to develop programme theories that hypothesis how and why mental health work force and identify additional evidence to explore and test these theories thereby highlighting any persistent gaps in understanding.	Qualitative	United Kingdoms	. It noted that interventions to improve staff retention should be tailored to specific context and should take into account the individual needs and experiences of staff members
MaslinProthero Sian. (2003). Developing user involvement in research. Journal of Clinical Nursing.	Developing user involvement in research. Journal of Clinical Nursing	Study was developed and evaluate a model or user involvement in health research in Wales	Mixed method approach	Wales	There are many barrier to user involvement in research, including a lack o knowledge in research, and a lack o trust in researchers.
Rees MR, Bracewell M 2019	On behalf of Medical Academic Staff Committee of the British Medical Association.	To examine the working conditions of medical academic staff in the UK and to identify factors that influences their job satisfaction and retention	Cross sectional survey	United Kingdoms	Among other things, medical academic staffs were dissatisfied with the level o bureaucracy and administrative burden in their jobs and felt they have enough time for academic work. This study also found that higher salaries and opportunities for career progression were key factors in retaining medical academic staff.
RR00028. Wales COVID-19 Evidence Centre April 2022.	Rapid review on the effectiveness of interventions/innovations relevant to the Welsh NHS context to support	To identify and assess evidence on the effective o intervention or innovations to	Rapid review	Wales	There is a wide range o evidence based intervention that have been found to be effective in supporting

	recruitment and retention of clinical staff	support the recruitment and retention off clinical staff in the Welsh NHS context			recruitment and retention o clinical staff, such as financial incentives, training and development opportunities, flexible working arrangement, and staff support system.
National institute for health for research	Research in the NHS – HR Good Practice Resource Pack HR Good Practice: Information for researchers, R&D and HR staff in Higher Education Institutions and the NHS		Literature	United kingdom	

3.2. About the Selected Articles

The selected articles for this review are as follows:

- Beecroft Claire, Booth Andrew, Otter Mary Edmunds, Keen Christine, & Lynch Colin. (2009)
- Bimpong KAA, Khan A, Slight R, Tolley CL, Slight SP. (2020)
- Cooksey, D. (2006)
- Dash, P., Gowman, N. & Traynor, M. (2003)
- Kirby Roger. (2020)
- Long J, Ohlsen S, Senek M, Booth A, Weich S, Wood E. (2022)
- Maslin Prothero Sian. (2003)
- Rees MR, Bracewell M. (2019)
- RR00028. Wales COVID-19 Evidence Centre, April 2022 National institute for health for research.

3.2.1. Quality Assessment

The CASP appraisal tool was employed to assess the quality of these articles, revealing that they addressed the specific subjects of interest for this study and discussed study objectives in detail. The quality assessment of selected articles was deemed satisfactory.

3.2.2. Observations and Implications

Upon observing the database query, article selection, and quality assessment, it becomes evident that improving staff retention in the Research and Development (R&D) section of NHS UK directly impacts the quality of healthcare services. While these articles acknowledge related factors contributing to the quality of healthcare services in NHS UK, they have adjusted for cofounders before establishing findings and conclusions.

3.2.3. Focus of Selected Articles

- Long J, Ohlsen S, Senek M, Booth A, Weich S, Wood E. (2022): Factors affecting retention of staff in UK adult mental health services.
- Bimpong KAA, Khan A, Slight R, Tolley CL, Slight SP. (2020): Relationship between labor force satisfaction, wages, and retention within the UK National Health Service.
- Dash, P., Gowman, N. & Traynor, M. (2003): Increasing the impact of health services research.
- British Medical Journal National institute for health for research: Research in the NHS – HR Good Practice Resource Pack.
- Beecroft Claire, Booth Andrew, Otter Mary Edmunds, Keen Christine, & Lynch Colin. (2009): Supporting 'Best Research for Best Health' with the best information.

- Maslin Prothero Sian. (2003): Developing user involvement in research.
- RR00028. Wales COVID-19 Evidence Centre, April 2022: Rapid review on the effectiveness of interventions/innovations relevant to the Welsh NHS context to support recruitment and retention of clinical staff.
- Rees MR, Bracewell M. (2019): On behalf of the Medical Academic Staff Committee of the British Medical Association.
- Kirby Roger. (2020): Dealing with the NHS staff recruitment and retention crisis. Trends in Urology and Men's Health.
- Cooksey, D.: A Review of UK Health Research Funding, London: Stationery Office.

3.2.4. Review Analysis

To comprehend the imperative need for improving staff retention in NHS UK's R&D section and to provide comprehensive information for healthcare services, this review analyzed major findings regarding factors affecting R&D sections, including reported impacts. Extracted data from these articles were organized into different themes and are presented in subsequent subsections.

3.3. Identifying and Screening of Participants

The authors of the selected articles all accepted that staff retention in R & D sections of NHS UK has a huge impact on the quality of health care services giving to the public. It was also agreed that the acceptance by the leader in charge of the section is a step on impact. Improving staff retention in the research and development section of the NHS UK can enhance the quality of healthcare services in several ways. [38]Higher retention rates contribute to a stable and experienced workforce, fostering continuity and expertise. Research indicates that staff stability positively correlates with improved patient outcomes (Dall'Ora et al., 2019).

[39]Smith et al., (2021) argued that improving research and development (R&D) section of the NHS UK can yield several benefits for healthcare services. One notable achievement is the development of long-term research projects with sustained impact. For instance, the retention of skilled researchers over the years has allowed for the continuation and expansion of studies on innovative treatments and technologies, leading to advancements in patient care.

3.4. Chapter summary

This chapter analysed the study design, data and findings of the articles selected from database query. This article collectively supports the improvement on staff retention in research and development in NHS UK. However, some of the studies observed insignificant impact in R & D section of NHS.

It will be important that these findings are translated for policy making information, especially in the health care sector, where healthcare practitioners in the research and development sections NHS UK are encouraged to fund and implore the actors listed in this study to boost the output and impact on health care services. Staff should be given opportunities like trainings and lectures, also good pay and compensations to boost their willingness to participate in research or evidence based practical or more break out in solving health problems. This will improve the quality of health care services given to the public while the government agencies in charge of medical research ensure the appropriate provision of needed support and funds for research sections.

4. Discussion

4.1. Chapter Overview

This chapter offers a comprehensive interpretation of the findings derived from the systematic review, aligning them with the specific objectives outlined in previous chapters. It systematically enumerates the conclusions drawn from the study, sheds light on the implications of the findings, provides recommendations for further studies, and discusses the strengths and limitations of the research.4.2. Discussion of Findings:

4.1.1. Identifying Challenges and Factors for Staff Turnover in NHS UK's R&D

All the reviewed articles converge on various challenges and factors influencing staff turnover within the R&D section of NHS UK [13]. Long J et al. (2022) highlighted organizational factors, such as resource allocation and leadership, alongside

individual factors like stress and job dissatisfaction, as contributors to turnover. Understanding this complexity is crucial for interventions aiming to improve retention [13].

4.1.2. Examining Strategies for Staff Retention in R&D:

Dash et al. (2023) emphasized the need to break down barriers between service and research organizations, encouraging collaborative efforts for relevant research. The National Institute of Health for Research proposed strategies to enhance staff integration, coordination, and research management. It clarified indemnity arrangements for independent contractors and addressed considerations for researchers with substantive employment contracts in the NHS [11].

The R&D People and Culture Strategy by the Department of Energy, Business, and Industrial Strategy outlined actions to redefine working in R&D, attract and retain diverse talent, and remove barriers to career paths and mobility [11].

4.1.3. Evaluating Career Development Influence on Staff Retention:

Bimpong KAA et al. (2020) established a close relationship between job satisfaction and staff retention. The NHS's investment in workforce development was emphasized, with satisfaction found to increase through pay increases. However, the cost-benefit of this approach varied among different groups [4].

4.1.4. Investigating Training Programs and Skill Enhancement Initiatives:

Training and development emerged as pivotal mechanisms for optimizing employee performance and fostering growth [40]. Md Mehedi Hasan et al. (2023) reported positive experiences among employees with training and skill development initiatives, perceiving them as valuable opportunities for professional growth and enhanced job performance.

In synthesizing these findings, it is evident that addressing challenges, implementing effective strategies, nurturing career development, and investing in training programs are crucial facets for enhancing staff retention in the R&D section of NHS UK. These insights provide a foundation for shaping policies and practices aimed at cultivating a more resilient and sustainable workforce within the healthcare research and development domain.

4.2 Implication of Findings

One of the major findings of this study is that there are little available studies on the impact of R &D sections in NHS and in health care services. From the articles assessed in this study, the findings revealed that there are factors causing the turnover in R&D sections and when improved will produce significant difference in health care quality and output in NHS generally. Likewise, it is worthy of note that this study identified career opportunity and pay as a major determinant in improving staff retention in R&D section NHS UK.

Therefore, the above findings provide needed information for the R&D staff, and other healthcare professionals leaders involved in R &D sections.

5. Conclusion

Research and Development (R&D) constitute a pivotal force in the healthcare sector, contributing significantly to medical advancements, technological innovations, treatments, and overall healthcare delivery. The systematic review conducted in this study underscores the profound impact of enhancing Research and Development on various critical aspects, including Medical Advancements and Innovation, Disease Prevention and Public Health, Drug Discovery and Development, and Precision Medicine. The recent decline in emphasis on R&D poses a growing concern, potentially compromising the output and future progress of medicine and healthcare. Urgent intervention is imperative, necessitating comprehensive awareness campaigns on the short- and long-term implications of R&D sections within the NHS. Further research is warranted to deepen the understanding of this issue, accompanied by the implementation of effective measures to prevent staff turnover and decline in research and development within the NHS UK.

Recommendations for Further Studies

The literature analysed in this study requires additional adjustment for other confounding factors, especially considering the aging workforce, to comprehensively address the improvement of staff retention in R&D sections of the NHS. A more elaborate and longitudinal study monitoring the achievements and impact of R&D sections in the UK is essential to establish the duration and extent of their influence. This proposed research can significantly enhance our understanding of the impact of R&D sections in the NHS, providing insights into unresolved challenges.

Limitations of the Study

The study relied solely on available data from accessible literature at the time of research. A more comprehensive dataset would have strengthened the assessment of the current impact of R&D sections in the NHS. Some screened studies did not align with the objectives of this study and were consequently excluded. This highlights the need for a more standardized methodology in future studies on this subject to ensure a consistent and robust approach.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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