TITLE PAGE

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Retention of doctors in emergency medicine: a scoping review of the academic literature

Full name, postal address and e-mail of the corresponding author
Daniel Darbyshire
Emergency Department, Salford Royal Hospital, Stott Lane, M6 8DH
d.darbyshire@lancaster.ac.uk

Full name, department, institution, city and country of all co-authors
Daniel Darbyshire (1,2), Liz Brewster (1), Rachel Isba (1,3), Richard Body (4,5), Dawn Goodwin (1)
(1) Lancaster Medical School, Bailrigg, UK. (2) Emergency Department, Salford Royal Hospital NHS Foundation Trust, Salford, UK. (3) Paediatric Emergency Department, North Manchester General Hospital, Manchester, UK. (4) Division of Cardiovascular Sciences, The University of Manchester, Manchester, UK. (5) Emergency Department, Manchester University NHS Foundation Trust, Manchester, UK

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ABSTRACT

Introduction

Workforce issues are common across healthcare, with the problem in emergency medicine evolving but not disappearing. Previous focus on recruitment has led to improvement. There is developing evidence that experienced doctors provide higher quality and more cost-effective care. Turnover is also expensive. As such, a focus on staff retention is warranted.

Method

This study is a systematic scoping review of the academic literature relating to the retention of doctors in emergency medicine, and describes current evidence about sustainable careers (focusing on factors influencing retention) as well as interventions to improve retention. The data sources were MEDLINE, EMBASE, Cochrane, HMIC and Psychinfo, with papers published up to April 2020 included. A broad eligibility criterion was used representing papers about retention, or related terms including turnover, sustainability, exodus, intention to quit and attrition, whose population included emergency physicians with a setting of the emergency department. Papers which solely measured the rate of one of these concepts were excluded.

Results

Eighteen papers met the inclusion criteria. Multiple factors have been linked with retention including perceptions about teamwork, excessive workloads, working conditions, errors, teaching and education, portfolio careers, physical and emotional strain, musculoskeletal complaints, stress, burnout, debt, income, work-life balance, and anti-social working patterns. No factors clearly dominated, but research related to burnout and measures of work life were more common. There was minimal research related to interventions. Inconsistently used definitions prevail in the literature, as do measures of correlation. Two qualitative studies add positive methodological diversity. The findings of the review were mapped to the ABC of doctors' core needs.

Conclusion

There is a limited body of research specific to retention in emergency medicine. The research lacks an appreciation of the complexity inherent in career decision-making. A broad approach addressing multiple factors rather than focusing on single factors may prove more effective.

'KEY MESSAGES' BOX

What is already known on this subject

Addressing the retention of emergency physicians has been identified as a high priority for research in Emergency Medicine.

More experienced clinicians provide higher-quality and more cost-effective care. Keeping them in the specialty is vital now that efforts to improve recruitment have yielded positive results.

What this study adds

Dozens of factors that influence retention have been identified in the literature.

There is a real lack of studies looking at ways to improve retention in emergency medicine.

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Future work should address complexity – as studying single factors or trying to change a complex entity like retention by addressing one element is unlikely to be beneficial.

INTRODUCTION

In 2012, an editorial summarising the finding of an interim report from the emergency medicine (EM) taskforce (a multi-professional group set-up by the UK Government's Department of Health to address workforce issue in EM) pulled no punches:

'Speak it loudly and speak it clearly: the specialty of Emergency Medicine (EM) in the UK has a medical staffing crisis.'[1]

In the intervening years, many of the recommendations contained in the report have been implemented. Recruitment to EM training has remained strong with 86.4% of vacancies filled in 2019,[2] though down from 96% in 2011[1]. Consultant numbers have increased across the UK,[3]. An alternative route into EM training has been developed. The number of clinical nurse specialists, advanced practitioners and physician associates within the emergency department (ED) has been expanded.[4] Despite these successes, growth in attendances continues to outstrip that of the workforce,[3] and problems with attrition from training programmes[5] and exodus of established clinicians via early retirement,[6] for example, mean that the workforce crisis may have changed, but it certainly hasn't gone away. Nor is it a problem unique to the UK. The landscape may be different, but staffing EDs is a problem worldwide.[7–11] The same can be said across other specialties. Psychiatry,[12,13] paediatrics[14] and general practice[15,16] are examples. Within the ED, this issue also affects nurses, the largest group working in EDs.[17]

Facilitating long and productive careers, be it for emergency physicians – the focus of this paper – or the other equally vital staff groups, is of paramount importance to sustainable long-term staffing of EDs. While perhaps self-evident, it is becoming increasingly apparent that more experienced clinicians provide higher quality and better value care for their patients.[18–20] Much of the previous work related to EM careers has focused on reasons for leaving, with the literature on burnout, the challenging working environment, and the impact of out of hours working continuing to develop. There is, therefore, a clear gap in the literature to view this problem from an alternative perspective: not to look at why people leave, but to focus on why those who stay do so, despite the universal challenges. That is the approach this systematic review, as part of a programme of research (REF BMJ OPEN PROTOCOL IF PUBLISHED) aimed at understanding one of the key problems facing the specialty of EM and the patients it cares for.[21]

This review is framed in terms of retention, but the terms use in academic and policy documents is inconsistent and lacking clarity. Its different meanings, expanded on in Table 1, relate to the proportion of workers still with an organisation after a period of time,[22–24] efforts by,[25–27] or the structure of,[27] the employing organisation to keep staff. We use the term retention in reference to its dictionary definition. The Merriam-Webster dictionary has three descriptions which, when taken as a whole, clarify the meaning of the term 'retention' without positioning it too tightly within a specific academic domain. These definitions are 'the act of retaining', 'the power of retaining' and 'something retained'. Retention therefore is something that can be done, be done in a particular way, and has

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been done. This brings us to 'retain' which is the transitive verb to the noun of 'retention'. The definition 'to keep in possession or use' is helpful as it refers both to both place and action.[28] Our use of the term is not time specific, but we recognise that in certain contexts, where measurement is important, a more technical definition may be required.

Table 1 Definitions of retention

Source *Title*	Definition
Retention	
Human Resource Management Textbook *Managing Employee Retention: A Strategic Accountability Approach*	'the percentage of employees remaining in the organization. High levels of retention are desired in most job groups.'[22]
Research in Nursing and Health *The Nursing Practice Environment, Staff Retention, and Quality of Care*	'the proportion of full-time staff nurses employed on a unit at the beginning of the study and remaining on the unit at the end of a 1-year period'[23]
Employee Retention	
Human Resource Planning *The Race for Talent: Retaining and Engaging Workers in the 21st Century*	'the effort by an employer to keep desirable workers in order to meet business objectives'[25]
International Journal of Advance Research in Computer Science and Management Studies *Review Paper – Study on Employee Retention and Commitment*	'a technique adopted by businesses to maintain an effective workforce and at the same time meet operational requirements'[26]
Journal of Economics, Management and Trade *Human Resource Management Practices and Employee Retention: A Review of Literature*	'the hierarchical arrangements and practices utilised as a part of the organisation to keep key workers from leaving the association'[27]
Volunteer Retention	
Independent Research Organisation Report *Volunteer Management Practices and Retention of Volunteers*	The percentage of volunteers involved with the organisation 1-year ago who are still involved today.[24]

As well as 'retention' the literature contains a myriad of other term which overlap in stated definitions and usage with many being used interchangeably. For example the word 'attrition' was frequently used interchangeably with the terms 'drop-outs', 'turnover', 'brain-drain', 'losses', 'premature departure', and 'separation'.'[29] The commonly used terms for both staying in a role and leaving it are defined in Table 2.

Table 2 Definitions for terms related to retention

Term related to staying in a role	**Definition**

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Sustainable careers	'the sequence of an individual's different career experiences, reflected through a variety of patterns of continuity over time, crossing several social spaces, and characterised by individual agency, herewith providing meaning to the individual'[30]
Career longevity	'a fundamental metric that influences the overall legacy of an employee because for most individuals the measure of success is intrinsically related, although not perfectly correlated, to his or her career length'[31]
Employee/personnel loyalty	'may be measured in terms of expressed commitment to the [organisation] and its mission and in terms of length of employment'[32]
Organisational commitment	'the relative strength of an individual's identification with and involvement in a particular organization'[33]
Occupational embeddedness	'the totality of forces that keep people in their present occupations'[34]
Term related to leaving a role	**Definition**
Turnover	'unplanned loss of workers who voluntarily leave and whom employers would prefer to keep'[25]
Intention to quit	'how often the respondents seriously considered quitting the job, whether they wanted to quit, and whether they were actually planning to quit'[35]
Exodus	Not defined in the literature. The Cambridge Dictionary has a business English definition of 'the movement of lots of people or things away from a place'[36]
Attrition	'exits from the workforce'[29] generally presented as a rate over time'
Career mobility	'the transition from one position to another'[37]
Organisational change	'any change in the employing firm'[34]
Job change	'any substantial changes in work responsibilities, hierarchical levels, or titles within an organization. It includes internal promotions, transfers, and demotions.'[34]
Occupational change	'transitions that require fundamentally new skills, routines, and work environments and require fundamentally new training, education, or vocational preparation'[34]

Because of these definitional inconsistencies, the search must include a wide selection of these terms, the included papers will be those that address retention, as we have defined, regardless of the terminology used by the authors.

METHODS

The protocol for this scoping review was published in advance and is available open access.[38] This paper focuses on the academic literature, the scoping review of the grey literature discussed in the protocol will be reported separately.

The aim of this study, aligning with the scoping review methodology,[39] is to map the extent of the literature directly pertaining to retention of doctors in emergency medicine.

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More specifically, this involves identifying the types of evidence available, collating the key characteristics of papers, identifying the key definitions and concepts, and delineating and analysing the gaps in the literature. This is in keeping with the predetermined review question:

Primary question: What is known about retention of doctors in emergency medicine?
Sub-question 1: What factors have been studied relating to retention of doctors in emergency medicine?
Sub-question 2: What interventions have been implemented to improve retention of doctors in emergency medicine?

A search of MEDLINE, EMBASE, Cochrane, HMIC and PsychINFO was initially completed on 15th March 2019 by Helen Elwell, Clinical Librarian at the British Medical Association Library, and then updated for papers published in the interim, on 14th April 2020 (Cochrane and MEDLINE) and 21st April (EMBASE, HMIC and PsychINFO). This was supplemented by searches of Business Source Complete, Proquest Business Premium Collection and Emerald Insight. The search terms for Ovid MEDLINE are available in Table 3, with the remainder in Appendix 1. Reflecting the nature of scoping reviews and the research questions, this search aimed for breadth of coverage. The Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist is included in Appendix 2.

Table 3. Ovid MEDLINE Search Strategy

	Search Term
1	physicians/ or exp pediatricians/
2	(physician$ or doctor$ or trainee$ or foundation year or fy1 or fy2 or sho or shos or senior house officer$ or registrar$1 or staff grade or associate specialist$ or consultant$).mp. [mp=title, abstract, original title, name of substance word, subject heading word, floating sub-heading word, keyword heading word, organism supplementary concept word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonyms]
3	p?ediatrician$.mp.
4	(medical practitioner$ or clinician$).mp.
5	or/1-4
6	emergency medical services/ or emergency service, hospital/ or trauma centers/
7	emergency medicine/ or pediatric emergency medicine/
8	(emergency medical services or emergency service or trauma center$ or trauma centre$).mp.
9	(emergency medicine or pediatric emergency medicine).mp.
10	(emergency department$ or emergency room or casualty department$ or "A&E").mp.
11	"accident and emergency".mp.
12	emergency training program$.mp.
13	emergency medical care.mp.
14	or/6-13
15	5 and 14

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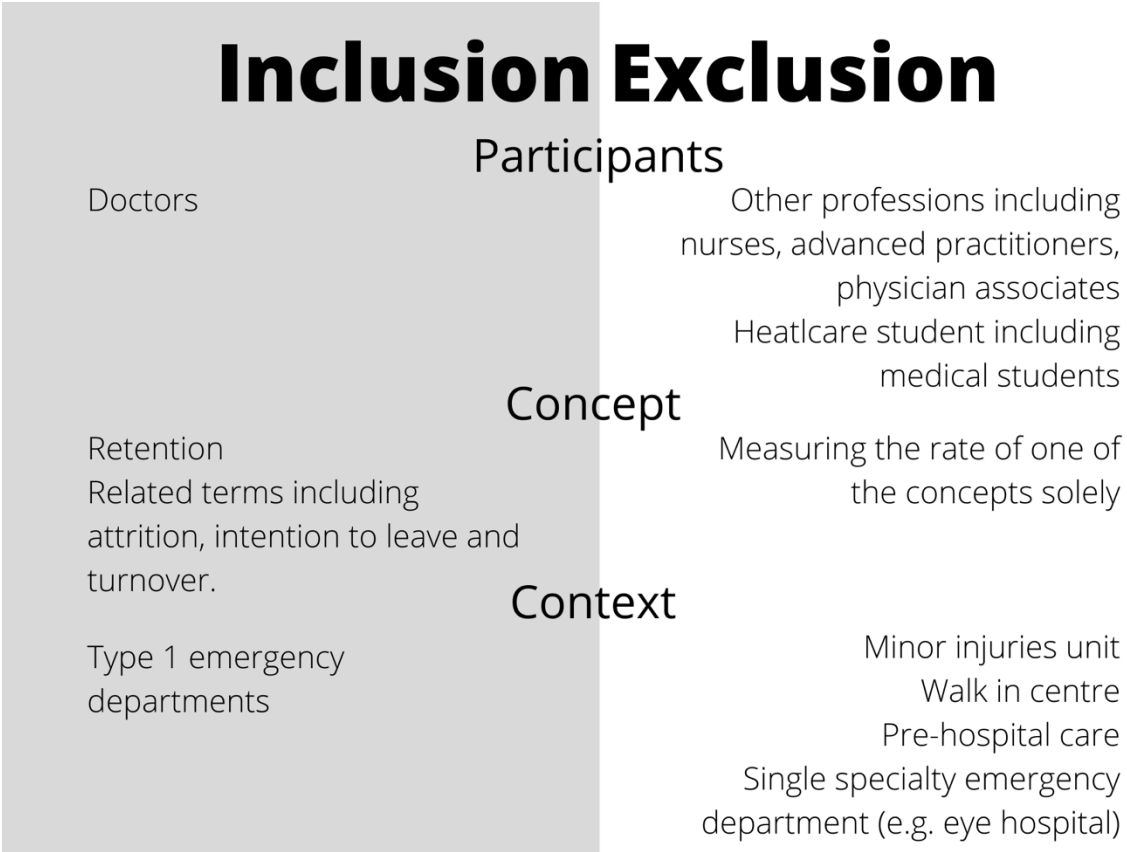
16	workforce/ or health workforce/ or personnel loyalty/ or work schedule tolerance/ or work-life balance/ or workload/ or personnel turnover/
17	burnout, psychological/ or burnout, professional/ or exp occupational stress/
18	Career Choice/
19	career mobility/
20	(workforce or manpower or staffing or retention or work-life balance or turnover or leaving medicine or exiting or burnout).mp.
21	(career adj4 (choice or mobility or progress$ or ladder or promotion or advancement or satisfaction)).mp.
22	or/16-21
23	15 and 22

All searches were limited to English language. No date limitations were applied. Given the vast number of results, a team-based multi-stage approach was undertaken. Titles were reviewed by DD and clearly irrelevant items excluded. Abstracts were then jointly reviewed by DD and UB. To ensure consistency they piloted with tranches of 20 until complete adherence was achieved and were in constant communication during the abstract screening process. Abstracts were reviewed against the inclusion criteria (see Figure 1 and the protocol[38]), with those clearly not meeting the criteria excluded. Full text articles were then accessed and again compared to the inclusion criteria.

Figure 1 Inclusion and exclusion criteria



The following data were extracted from the included articles: citation, methodology, factors influencing retention, efforts to improve retention, and other findings relevant to retention of doctors in emergency medicine. It was not planned to synthesise data, or to look for

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themes across the papers, but to present the different approaches to doctor retention in emergency medicine that is represented in the literature, and to give a picture of where the gaps in the literature are. Papers not pertaining to emergency physicians, and those that did not go beyond measuring a rate of retention (or attrition) were excluded.

RESULTS

Database searches of the academic literature identified 12,120 items. After deleting duplicates, 10,365 titles remained. 890 items remained after titles were screened. After reviewing abstracts, 52 articles remained for full text review. A further 32 were excluded at this stage, leaving 18 for inclusion in the scoping review. The studies excluded at this stage, including rationale for exclusion, are summarised in Appendix 3. The PRISMA diagram is presented in Figure 2.

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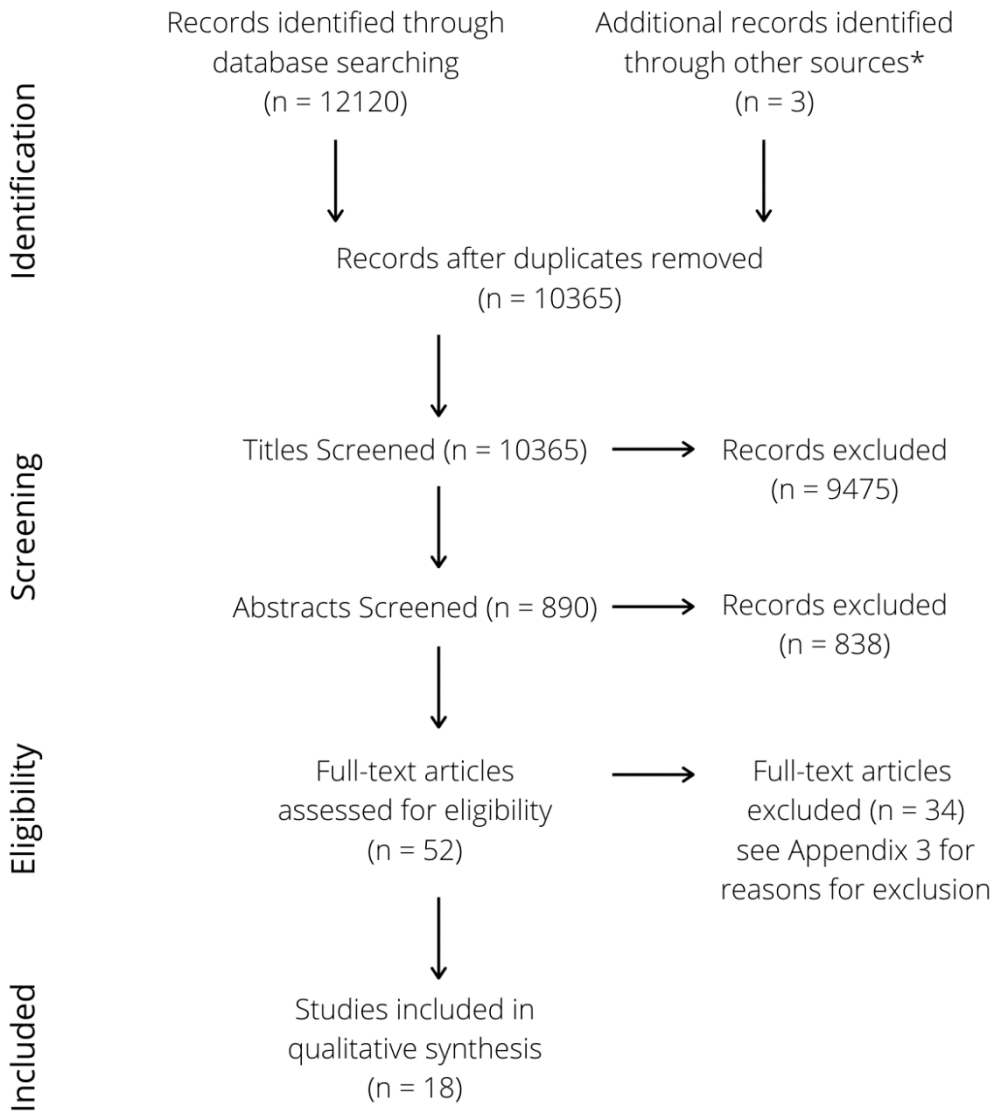
Figure 2 PRISMA Diagram



*Other sources - 1 published conference abstract led to identification of a PhD dissertation, 2 conference abstracts to full papers.

Adapted from: Moher D, Liberati A, Tetzlaff J, Altman DG, The PRISMA Group (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. PLoS Med 6(7): e1000097. doi:10.1371/journal.pmed1000097

For more information, visit www.prisma-statement.org.

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The earliest paper meeting the inclusion criteria was published in 1988 and is unique in presentation.[40] The paper first presents a clinical case where an error happened and the patient died, the majority of the paper is dedicated to a discussion between the three authors (all emergency physicians, EPs), and some trainees on the impact this, and errors in general have. The paper explicitly links error and exodus and discusses ways that EPs can cope with errors, which are inevitable within their scope of practice. The first half of the 1990s yielded three papers[41–43] as did the second half.[44–46] The first decade of the new millennium yielded a single paper in 2000,[47] before a renewed interest in the years from 2010 onwards. Each year of 2010,[48] 2011,[49] 2013[50] and 2014[51] yielded a single paper. Three papers were published in 2017[52–54], 1 in 2018[55] and 2 in 2019.[56,57]

France,[49] Brazil,[54] Australia[57] and Canada[45] contributed a single paper each, Ireland 2,[51,56] the UK 3,[52,53,55] with the other nine – half of the included papers – originating from the USA.[40–44,46–48,50] One included item was a doctoral thesis[48], the rest being papers in academic journals. The *Emergency Medicine Journal* published three papers,[49,52,53] as did *Academic Emergency Medicine*.[43–45] *Academic Medicine* published two papers,[42,50] as did the *Journal of Emergency Medicine*.[46,47] The other seven papers originated from separate journals either of national EM organisation[40,41,54,57] or general medicine journals.[51,55,56]

The majority of articles were research papers[41,43–46,49,50,52–54,56]. One brief communication paper presented a study[42], while another presented the authors' opinion.[57] There was a single editorial[51]. One paper pragmatically reviewed the academic and policy literature,[55] as did the aforementioned case report and discussion,[40] though in a less detailed fashion. The dissertation was a collated body of studies, though only one is directly relevant to this review.[48]. The final paper was a letter[47], commenting on one of the included research papers[46], and referencing the authors' own study,[44] also included in the scoping review. Of the 13 articles presenting original research[41–46,48–50,52–54,56], 10 utilised a questionnaire as part of their research methods,[41,42,44–46,48–50,54,56] two involved interviews as the primary method of data collection [52,53] and one conducted a cohort study using routinely-collected data.[43] Four of the questionnaires measured workplace and practice characteristics[41,46,50,54], three measured a phycological construct[44,48,49] using a tool for example the Maslach Burnout Inventory[44]. One questionnaire specifically measured job satisfaction[45], while another tried to delineate factors that influence the decision to continue in EM.[42] The final questionnaire,[56] along with the sole cohort study,[43] measured reasons for leaving. One of the interview based studies explored EPs' experience of psychological distress and wellbeing,[53] the other explored why EPs' chose their careers and what allowed them to continue doing the job.[52] Further details on the methods and study details such as sample size are available in Appendix 4. A brief summary alongside the links to the research question is in table ?XYZ.

Factors Influencing Retention

The identified papers explored retention in different ways. Three papers analysed factors that correlated with intention to leave[44,49,54], five correlated with reasons for having quit or attrition rates, [41,43,45,46,56] two with reasons for continuing EM work,[42,52]

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and in one case reasons why EPs might leave and why they stay.[53] Two of the papers found no applicable correlations: Margin in life (a psychological theory of adult development) scale had no correlation with intention to quit, [48] and while a low score on the Global Job Satisfaction instrument scale was correlated with leaving EM, its test characteristics meant that it was not a useful predictor.[45] Six papers reported opinions on retention in EM at different levels.[40,47,50,51,55,57] A pragmatic literature review described elements of EM that negatively impacted retention,[55] a case and literature informed discussion explored incidents that may lead an EP to quit,[40] a letter[47] commenting on an included study[46] mainly reiterated points from the original study which correlated with intention to quit.[44] The two remaining letters focused on sustainable careers in two different countries.[51,57] The diversity of approaches has led to a large number of different factors correlating with retention in EM, these are documented in Table 4.

Table 4: Items related to retention, attrition or intention to leave EM.

Experience of Work	Teamwork[49,52] Harassment by supervisors[49] and incivility[40] Job satisfaction[45,54] Excessive workloads[56] Poor working condition[56] Peer support[51,53] and professional links[57] Diagnostic challenges[42,52] Errors[40] Lack of influence at work[49]
Training and Education	Absence of continuing professional education[49] Lifelong learning[51,57] Lack of training and supervision[56] Board certification (higher training) in EM[41,46] Board certification in another specialty[41,46] Fellowship in another specialty[46] Work with trainees[41] Teaching[52] New roles[53] Subspecialty training[57]
Impact of Work	Worry about mistakes[49] Musculoskeletal complaints[49] Physical and emotional strain[53] Burnout[44,49,51,55] Occupational stress[55] Stress[51]
Work-life Balance	Debt[43] Income[41,42,46] Work-life balance[52] Flexible working[52] and predictable hours[42] Strategic approach to shift work[50] Anti-social working patters[40] Receiving a job offer outside of medicine[49]

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Efforts to influence retention

The majority of papers did not directly address efforts to improve retention.[41–44,46–49,54,56] Of those that did, only three drew conclusions from empirical work.[45,52,53] The participants in James and Gerrard's study thought that improving flow and staffing would improve retention,[52] while those in Fitzgerald et al.'s study thought that the emergency of self-care and compassion dialogues may be beneficial.[53] Lloyd et al. stated that scheduling, as an extrinsic part of job satisfaction, is amenable to change.[45] However, it should be remembered that in this study, while the job satisfaction scale they tested was statistically significantly correlated with attrition, the test characteristics of this relationship were not useful.

The other studies offered suggestions from a range of perspectives. One paper referenced documents on aging and the EM workforce[50] while another offered an unreferenced statement that in some countries 'older doctors are not required to participate in after-hour rosters'.[57] An editorial explained that streamlining training and a ministerial review of the broader medical workforce in Ireland, both ongoing, might help retention.[51] The case report and discussion paper provided examples and references for stress management techniques that are relevant to EPs and the authors posited this might help sustainability.[40] Smith and Dasan's review paper highlighted measures to improve retention, reflecting some of the work of the previous section, specifically: job planning, less than full time working, portfolio careers, appropriate remuneration, and wellbeing.[55] They then introduced sustainability work from the UK's Royal College of Emergency Medicine.

Other findings related to retention

The participants in Fitzgerald et al's study universally identified with the term 'sustainability' when discussing their emotional and physical status related to their work.[53] This parallels the terminology used in the review by Smith and Dasan, also from the UK, along with the materials from the Royal College of Emergency Medicine that it references.[55]

In their study of residency trained US Eps, Hall and Wakeman found that clinicians tended to decrease clinical work and increase other types of work, such as teaching and administration, as their careers progressed.[46] Takakuwa et al. found that policies related to this were inconsistent for the EPs approaching the final years of their career.[50] While both these studies were from the US, this message is mirrored in Holmes' opinion piece from Australia.[57]

Estryn-Behar et al.'s large study of French EPs found that working conditions may be more important than pay.[49] Related to this, Xu and Veloski[42] and Xu et al.[43] found that educational debt was associated with staying in EM in the US.

Feitosa-Filho et al.'s study from Brazil found that 81.3% of EPs planned to stop working in the ED in the following 15 years. A letter by Mallon (from the US),[47] commenting on Hall and Wakeman (),[46] expressed concern about the possibility of overestimating attrition in the US leading to having too many trained Eps, leading in turn to job insecurity and a fall in the perceived value of EPs.

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DISCUSSION

It has been over 20 years since the first paper on retention of EPs was published[40], with a seeming trend of increased activity in this domain reflecting the growth of EM research globally.[58] Despite this relative growth, the absolute number of papers is low, and those that have been produced display significant methodological heterogeneity. The most frequently utilised approach has been to measure, using either a pre-existing scale of a psychological construct and test to see if it is correlated with retention or a term related to it.[44,48,49,52] Burnout is the most assessed construct,[44,49] reflecting the prominence of burnout research in both the EM[59,60] and wider medical literature.[61–63] Again, reflecting the wider medical literature on burnout problems arrise with definitions and interpreations of the term, different cut-offs used for the threshold for defining burnout, different burnout inventories used, and the real issue of type 1 error when multiple tests for correlation are undertaken.[64] Despite these issues, it is useful that two studies from different continents, using two different validated measures, have linked burnout with retention (both via intention to leave),[44,49] a finding that is replicated in the nursing profession,[65] teachers[66], and volunteers.[67] Margin in life (a psychological theory of adult development) was not correlated with intention to leave[48] - the measure is most often correlated with readiness for change such as organisational restructuring or merger.[68,69] And while global job satisfaction was correlated with attrition the authors found that the correlation was not strong enough to use the scale predictively,[45] a finding not inconsistent with the broader literature which finds that intrinsic job satisfaction is negatively correlated to turnover whereas extrinsic job satisfaction has no convincing link.[70]

The second prominent group of studies measured aspects of work life and either measured atttrition[41,46] or intention to leave[54] or described policies related to retention in the final third of a EP's working life.[50] Of the many aspects of work life that Feitosa-Filho et al. measured, job satisfaction – measured as a single multiple choice question with the options 'staisfied', 'neutral' and 'dissatisfied' – was the only one showing statistical correlation with intention to leave.[54] The study by Lloyd et al., discussed above, linked these two facets but not strongly enough to offer a predictive test,[45] Feitosa-Filho et al. study baseline intention to quit characteristics of their study from Brazil make it equally difficult to apply a different practice setting. 64% of their EPs who were 'satisfied' and 94% who were 'dissatisifed' intended to quit in the next 15 years. This does not mean that job satisfaction should be discounted – there is a long history from economics marking satisfaction as a 'major determinant of labor market mobility'[71] – and it has been linked with concepts related to retention across several professional groups including nurses,[72] general practitioners, [73] physician assistants, and nurse practicioners.[74] The second aspect of work life relates to training, with board certification (postgraduate specialty examinations in the US) and fellowships (a period, generally a year, of sub-specialty training related to the primary training specialty) correlating with lower attrition.[41,46] What it is about fellowship or board certifcation that influennes attrtition isn't clear, but other studies have linked high academic achievement while at medical school[43] and the intellectual content, specifically diagnostic challenges, of the specialty as important.[42] Features that can be threatened by a lack of training or supervision, excessive workloads and poor working conditions.[56]

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Most of the studies examined retention from a broad, though neccesarily superficial perspective. However, two studies took the opposite approach, gaining indepth accounts from a relatively smaller number of participants.[52,53] In the context of the correlational research which predoinates these studies add strength to conclusions drawn from polar research perspectives, and highlight areas where superfical conclusions may hide important areas of complexity. Describing the physical and emotional strain of working in the ED as 'unsustainable' adds credence to the idea that psychological measures (such as burnout) may have utility in efforts to improve retention, while simultenously suggesting that such measures may be an oversimplification. The more social aspects of EM, such as the flattened hierarchy[52] and peer social support[53] move the discussion away from the individual approach to retention to the idea that the interactions between the people involved in the work of EM might be key.

The papers in this study support the notion that pay is linked to retention[22] with higher income correlating with lower attrition[46] and with those who leave the specialty having had lower incomes than those who stayed.[41] Income was reported as a major factor in decisions to stay in EM.[42] Educational debt is another factor, representing a strong correlate with staying in EM in one study[43] and a minor factor in another[42]. It should be noted that these studies are from the US, where both income for doctors and educational debt are significantly higher than most other counties, with Estryn-Behar et al.'s study from France concluding that 'working conditions may be more important than pay'.[49] The relationship between pay and retention is more complex than a linear correlation, so that even with high pay, 'pay dissatisfaction can lead to turnover'.[22] Other factors, beyond the amount of remuneration received, make pay more complex with perceptions of fairness being the most important. This is described at two levels. This first, distributive justice, refers to the distribution of pay within an organisation[75], while the second, procedural justice, is about the process through which pay is administered[76] with both repeatedly linked with retention both within[76] and outside of healthcare.[22,75]

While some of the studies presented here discussed aspects of work that may be amenable to change, in order to improve retention, none tested this hypothesis directly. The lack of interventions in the academic literature may be due to them being reported elsewhere. It is highly unlikely that a change to a single aspect of work influencing retention would lead to measurable change – the required number of participants and scale of impact would likely be too large to be feasible. Moving towards recognising, studying, and implementing change with complexity,[77] rather than imposing false notions of simplicity, will be key to any successful interventions, something that the review by Smith and Dasan alludes to.[55]

The concept of career change or evolution, may be more closely aligned to careers in EM rather than the more straightforward concept of promotion, demotion, and resignation,. Hall and Wakeman found that clinicians decreased clinical work and increased other work though their career.[46] Portfolio careers, here meaning role diversity within a profession rather than the definition more common outside of healthcare - 'individuals develop a portfolio of skills that they sell to a range of clients',[78] are gaining increasing prominence in discourses about health professions careers.[55,79] The idea that using skills developed through professional training and experience in related roles helps prevent people getting

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bored or jaded has strong face validity and, while there is a small body of research supporting this, the findings are not conclusive.[16]

A recent body of work recently published by the UK medical regulator (GMC, General Medical Council) started with the premise that patient safety is depended on doctors' wellbeing, and integrated a summary of the existing academic literature with case studies and developed the ABCs of doctors' core needs. While not the primary aim of this work, it is clear that retention was within its broader remit, with the foreword from the Chair of the GMC stating that 'If we act together we will avoid losing good doctors and seize a golden opportunity to tackle the challenges the health service must meet now and in the future'.[80] The findings of this review can be mapped to the ABC structure, see figure 3.

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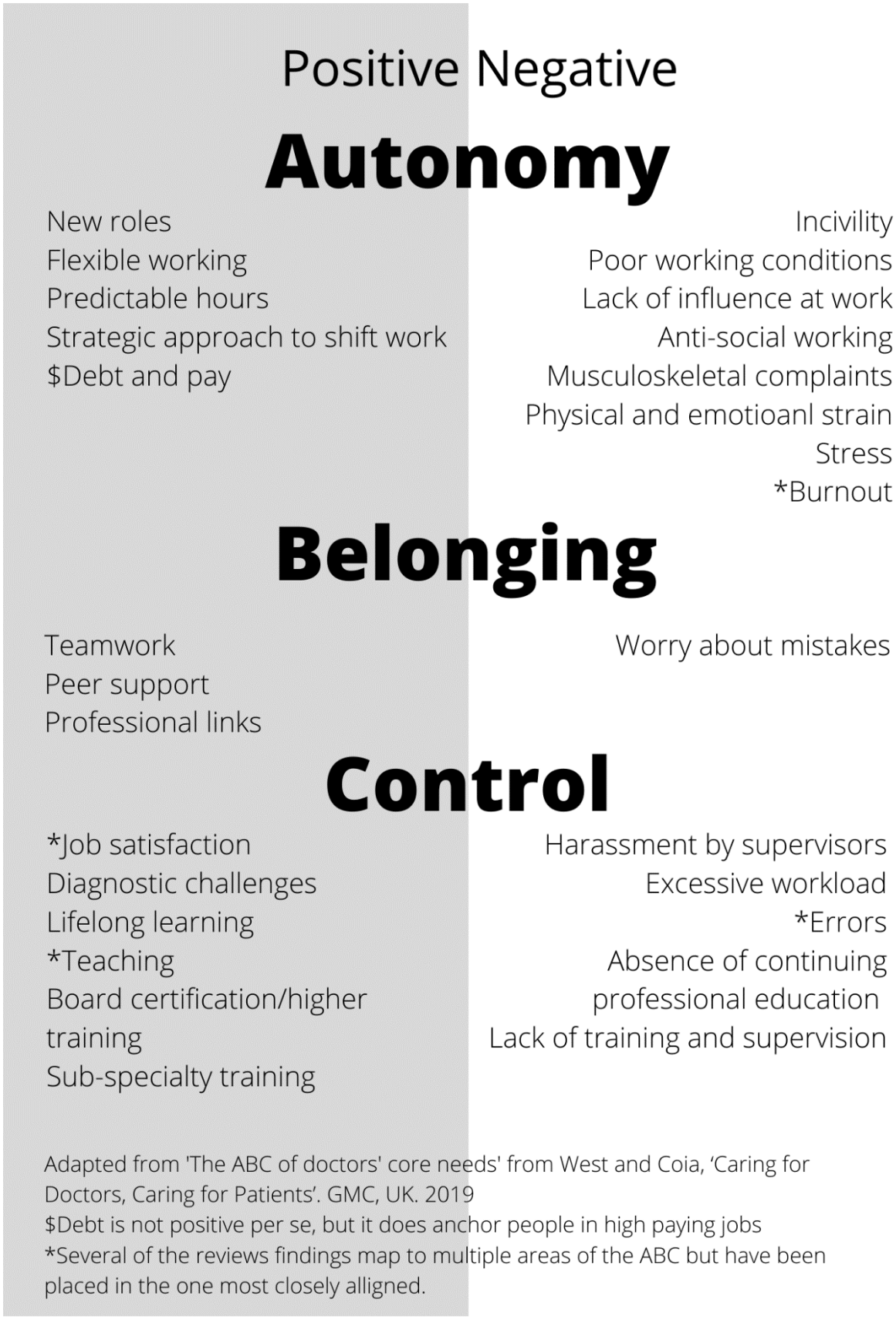
Figure 3. Review findings mapped to the ABC of doctors' core needs



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Referring to the table of definitions, it is interesting to note that although the papers use the terms related to retention, there is a universal lack of clear definitions, for example Hall et al. use the term 'career longevity' without defining it.[41] Estryn-Behar et al. do not define 'intention to leave', but they do reproduce the question they use to measure it, and in other instances the terms related to retention come from interview participants rather than the researcher.[52,53] Lloyd et al. use an approach that avoids clearly defined terms, instead using short descriptive statements such as 'left job and EM altogether' consistently.[45] However, the general lack of clarity in terms related to retention is a real weakness of this body of literature, with terms – such as 'attrition rate' meaning different things in different papers (if indeed they are clearly defined at all – a potential source of confusion and misinterpretation. The table of excluded papers (Appendix 3) reinforces this, with papers relating to intention to leave referring to the workplace rather than the profession, and many papers presenting an estimate for levels of intention to leave or turnover, which while useful in that specific context, does not help with developing understating of retention.

The scoping review process has inherent limitations, we have mapped the factors that influence retention but not the scale of influence of each factor. The breadth of types of papers meant that several different quality appraisal tools would have been required to do this and a decision was therefore made that this would not have added significantly to the current study.

The literature related to retention of doctors in EM yielded a variety of factors with complicated and mostly unclear interactions. Future research needs to embrace this complexity rather than try to eradicate it. Interventions to improve retention have a very limited research base. Linked to the factors influencing retention it is likely that programmes to address a single issue are unlikely to be effective, instead holistic approaches cutting across the multiple domains of work life should be trialled.

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All authors have completed the ICMJE uniform disclosure form at www.icmje.org/coi_disclosure.pdf and declare: DD had financial support from the NIHR, BMA Foundation and the Royal College of Emergency Medicine for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years; no other relationships or activities that could appear to have influenced the submitted work.

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APPENDICES

Appendix 1 – Searches

Appendix 2 - Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

Appendix 3 – Table of excluded papers including rationale

Appendix 4 – Methodological details for included papers

Appendix XYZ/TableXYZ – Table of included papers

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