



An integrative review of the factors influencing older nurses' timing of retirement

## Older nurses and retirement

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## ABSTRACT

**Aims:** To summarise the international empirical literature to provide a comprehensive understanding of older nurses' decision making surrounding the timing of their retirement.

**Background:** The global nursing shortage is increasing. Amongst some countries it has become an economic imperative to consider raising the state pension age and to extend working lives.

**Design:** An integrative literature review using an integrated design.

**Data sources:** MEDLINE, CINAHL and Business Source Premier databases were searched for studies between January 2007 - October 2019.

### Review Methods:

Quality appraisal of the studies were conducted. Findings were summarised, grouped into categories and themes extracted. Two models were developed for data representation.

**Results:** 132 studies were identified by the search strategy. Of these, 27 articles were included for appraisal and synthesis. 16 papers were quantitative, seven qualitative and four mixed methods. The research took place in 13 different geographical locations. Most studies were of a questionnaire design, followed by interviews and focus groups. The total participant sample was 35,460. Through a synthesis of the studies, four themes were identified: Health, Well-being and Family factors; Employer factors; Professional factors; Financial factors.

**Conclusion:** This review revealed the heterogeneity of studies on this subject and confirmed previous findings but also established a ranking of criteria that influences nurses' decision making: age, followed by personal and organisational factors. Four extracted themes of push and

pull factors map onto these factors. No 'one-size-fits-all' strategy exists to ensure the extension of older nurses' working lives. Organisations need to foster an environment where older nurses feel respected and heard and where personal and professional needs are addressed.

**Impact:**

Organisations need to implement HR policies addressing nurses' personal well-being and retirement preparation. Older nurses are more likely to extend their working lives if they feel committed to their organisation and when professional standards are maintained.

**Key words:** older nurses, retirement, workforce, decision making, extended working lives, integrative review

## INTRODUCTION

Demand for healthcare is rising due to an ageing population bringing increasing complexity (Haddad & Toney-Butler, 2019). Liu et al. (2017) predict that by 2030, global demand for health workers will rise to 80 million, while supply is expected to reach only 65 million over the same period, resulting in a worldwide shortage (J. X. Liu, Goryakin, Maeda, Bruckner, & Scheffler, 2017). Internationally, nurses and midwives comprise the largest component of the healthcare workforce (47.5%) and represent more than 50% of the current nursing shortfall (World Health Organization, 2016). Nursing shortages are a worldwide concern (Wargo-Sugleris, Robbins, Lane, & Phillips, 2018).

The UK's Nursing and Midwifery Council (NMC) report annually on numbers of nurses and midwives on the NMC register. In March 2019 their data reveals that while there is now a small upward trajectory of registrants remaining on the register, 35% are now aged over 50 and retirement accounts for 50% of those leaving the register. Indeed, retirement is the most common reason for ceasing registration (NMC 2019a). Data from the NMC register also indicates a changing trend in age of registrants, with a growth of 2220 in those aged 61- 65, compared with growth of only 1659 in those aged under 30, meaning that the number of registrants at/approaching retirement age is growing quicker than the next generation of nurses (NMC 2019b), trends that other countries are also facing (Ryan, Bergin, White, & Wells, 2018; Schofield & Earnest, 2006; Warburton, Moore, Clune, & Hodgkin, 2014; Wargo-Sugleris et al., 2018). In the UK (which has the largest single-payer healthcare system in the world), the age profile among the qualified nursing workforce in England has changed; in 2007 44% of the nursing workforce across all sectors was aged 45 or over, compared with 49% in 2017 (Royal College of Nursing, 2017), with variations according to specialty. For instance, 64% of general practice nurses (GPNs) are over 50, with only 3% under 40 years of age (Health Education England, 2015).

Older nurses represent a highly skilled and experienced component of the workforce, whose loss, if avoided or lessened, would not only improve nurse retention, but also provide an ongoing cadre of experienced nurses to support, coach and mentor the next generation(s) of nurses. Not

all nurses who reach retirement age may wish to fully retire, but several structural factors, such as pension, a lack of flexibility and opportunity to reduce hours and change role, may militate against retaining this valuable component of the workforce.

This paper presents the findings of an integrated review, which aimed to determine the factors that affect nurses' decision making about timing of retirement. These factors are commonly recognized in the policy and research orientated literature as 'push' and 'pull' factors (Vickerstaff, 2010, p870). This paper is the first review of its kind to investigate the retention of the older nursing workforce since 2008. It confirms previous findings but also establishes more clearly the ranking of factors that influences nurses' decision making.

## **Background**

### *Retirement as a choice*

During times of high workforce supply and unemployment, early retirement has been used as a method to moderate the workforce, i.e. making room for younger workers, resulting in early age retirement as a norm for many (Vickerstaff, 2010). Banks and Smith's (2006) analyses of UK retirement data revealed that two-thirds of men and 55% of women stopped working prior to their retirement age (Banks & Smith, 2006). Retirement decisions were not synonymous with drawing a pension, nor a gradual process of labour-market withdrawal, but instead involved a fairly abrupt transition, which for many was a permanent decision.

Conversely, as the number of older people in high-income countries increases it has become an economic imperative to raise the state pension age and to extend working lives; remaining at work for longer is therefore increasingly an expectation and a reality (Vickerstaff, 2010). Indeed, the US abolished the mandatory retirement age for all workers in 2011 and many countries followed suit (Lain & Phillipson, 2019). Japan, a country with an Old Age Dependency Ratio above 50% (Finish Centre for Pensions, 2019), has had the largest increase of older workers in the age bracket 65-69, which jumped up from 35.7 to 44% in 2016 (Heizo, 2019; OECD, 2017a). Korea is following Japan's trend of an increasingly older workforce (OECD, 2018b) despite a lower Old Age Dependency Ratio (OADR). (The OADR is the ratio between the number of

persons aged 65 and over and the number of persons between 15-64. The value is expressed per persons of working age (15-64) (OECD, 2017b)). In some European countries men aged up to 65 remain in the workforce (Denmark, Iceland, Ireland, Portugal and Switzerland), whereas employees in Austria, Belgium, France, Hungary, Luxembourg and the Slovak Republic tend to cease working aged 60 (OECD, 2018a). As a general rule of thumb, women retire around one to two years earlier than men (OECD, 2018a). In some European countries (Finland, Cyprus, Denmark, Estonia, Greece, Italy, the Netherlands, Portugal, Slovakia) the retirement age is being linked to life expectancy, a trend apparent more latterly in the UK (Finish Centre for Pensions, 2019).

Retirement can be understood as a social construct, with two competing models within people's expectations; one sees retirement as a phase of decline, the other as a phase of fulfilment and enjoyment of life after hard work (Hedges, Groom, & Sykes, 2009; Karp, 1989). Of relevance to this review, Vickerstaff (2010) observes that amongst public sector workers strong cultural assumption exists whereby early retirement and its attendant opportunities for travel, new leisure interests/hobbies and additional free time, is an aspiration. Thus, the desire to extend working lives is not as evident in this population group as some of the survey data in studies of workers' intentions would suggest.

Frequently, many individuals do not have a choice over whether to retire. Moreover much literature on retirement has focused on men, despite evident gender differences in retirement planning (Wels, 2016). Indeed, gender and age are key factors that influence the experience of paid employment (Philipson, 2007; Vickerstaff, 2010). As most nurses are women and increasingly older women, gender and age are important considerations, as are family circumstances and factors such as health and wellbeing. The employer's influence on individuals' perceptions of and intentions surrounding retirement also need to be considered. A survey undertaken by the NMC in 2017 revealed that working conditions, including staffing levels and workload were cited by 44% of respondents as reasons for leaving the register early, while change in personal circumstances, for example, ill-health or childcare responsibilities were cited by 28% (NMC, 2017). Disillusionment with the quality of care provided to patients applied to 27% of those prematurely leaving the register (NMC, 2017).



### *Defining the Older Nurse*

In the literature what constitutes an 'older nurse' can be broad (Bell, 2013; Blakeley & Ribeiro, 2008a, 2008b). Some studies consider an older worker to be over the age of 50 (Vickerstaff, 2006, 2010; Wargo-Sugleris et al., 2018) while others consider 45 to be the age of an older worker (Adams, 1999; Shacklock & Brunetto, 2005). To ensure as many studies as possible are included, this review therefore considers the older nurse to be over the age of 45.

## **THE REVIEW**

### **Aims**

The aim of this integrative review is to summarize and synthesize the global empirical literature to provide a comprehensive understanding of older nurses' decision making surrounding the timing of retirement. The guiding research question is: "What are the reported push and pull factors that influence global older nurses' decision making about the timing of their retirement?"

### **Design**

An integrative review methodology was employed since integrative reviews allow for the inclusion of differing methodologies and thus have the potential to build our understanding of nursing issues, informing research, practice and policy (Whittemore & Knafl, 2005, p546). An integrative review therefore follows a 'systematic' process but is more inclusive than a systematic review as a range of studies (qualitative, quantitative, and mixed methods) are included. They follow the steps of problem identification, literature search, data evaluation, data analysis and presentation, however, in praxis there has been significant variation in executing the aforementioned steps, especially concerning the step of data evaluation (Hopia, Latvala, & Liimatainen, 2016; Soares et al., 2014). This review follows an integrated analysis design that focuses on the qualitative aspects of the studies identified and 'qualitises' the quantitative data for the purposes of data synthesis in a results-based matrix meaning that qualitative, quantitative and mixed methods studies are identified in a single search, presented and reported. The methodological differences between qualitative and quantitative studies are minimised as both

are viewed as producing findings that can be readily synthesised into one another because they address the same research purpose and questions (Hong, Pluye, Bujold, & Wassef, 2017; Noyes et al., 2019). In addition, PRISMA and ENTREQ reporting guidelines have been followed (Moher, 2009; Tong, Flemming, McInnes, Oliver, & Craig, 2012).

### **Search methods**

A single systematic search (to cover all research types) of the literature was undertaken in October 2019 using the following databases:

- Ebsco: Medline (20 October 2019)
- Ebsco: Cinahl (20 October 2019)
- Ebsco: Business Source Premier (20 October 2019)

In addition, the resulting papers were hand searched for specific references, which may have been missed. These were then followed up by searching the specific journal or by using Google scholar and further cross-checked to identify if any key studies were missed by using the 'related journal article' function.

Search terms used were: "older", "nurses", "retirement" with the 'and' Boolean operator.

Articles between 2007 - 2019 were searched, with the start date reflecting the end of a previous review conducted on the subject (Moseley, Jeffers, & Paterson, 2008). The selected database limiters were: academic journals; English language articles; and published from 2007 as presented in Figure 2.

### **Search outcomes**

The search returned 132 articles, which were reduced to 95 after the removal of duplicates. At the screening stage, titles and abstracts were assessed against the following inclusion criteria:

- Empirical/primary peer reviewed research articles
- Quantitative, qualitative, and mixed methods studies
- Included registered nurses from the age of 45 years and above onwards

- Explicitly referred to factors or reasons for the retirement decision / intent to remain

Exclusion criteria were:

- Insufficient details on the age of the nurses involved in the research provided
- Description of the working experiences of older nurses in general but not related to the retirement decision making process
- Literature reviews of any kind
- Books

Following screening, a further 67 articles were removed, leaving 31 articles to be included in the analysis.

### **Quality appraisal**

Two researchers << redacted for reviewing purposes >> independently assessed 31 full-text articles using the Mixed Methods Appraisal Tool (MMAT), Version 2018 (Hong et al., 2018). Articles were segregated according to whether they were of quantitative, qualitative, or mixed methods design and assessed using the criteria for their category within the tool (Figure 1 & supplementary file 1,2,3 respectively). After quality appraising the articles the age criteria of older nurses in the Durosaiye, Hadjri, & Liyanage (2015) paper were not met and the Hewko, Reay, Estabrooks, & Cummings (2018) paper was the development of a conceptual model and not empirical data. In addition, the following paper was not about decision making factors but about older nurses' experience of challenges in their work (Ang et al., 2017) and another was not retrievable as a full text (Walker, Clendon, & Willis, 2018). This resulted in a final sample of 27 articles (Figure 2) to be included in the final synthesis of 'push and pull' factors.

### **Data abstraction**

Data from the included studies was extracted by three authors << redacted for reviewing purposes >> and categorised according to the source, country of where the research took place, study aims and objectives, research methods, any instruments used to collect data, sample size, population and age range, analysis types used and main findings; separated into push and pull

factors (Table 1). Table 1 provides an overview of all included research studies. To view data extraction by study design, see supplementary online files 4, 5, 6 (Table 1 Data extraction quant; Table 2 Data extraction qual; Table 3 Data extraction mixed method). Categories were kept broad due to methodological differences across and within studies and therefore summary measures were not possible.

## **Synthesis**

Due to heterogeneity across studies and even within similar study methodologies, a meta-analysis or combining of quantitative data for further analysis was not possible. Studies were combined to summarise descriptive statistics of the study characteristics, but no further quantitative analysis was performed. Instead, the authors performed a combined inductive and deductive synthesis (Noyes et al., 2019) using an explanatory framework of personal and organisational factors. Organisational factors are the terms and conditions the employer sets in contrast to the personal factors which are related to individuals directly. Within each main category the authors sorted the findings of the literature into a 'push' (barrier) or a 'pull' (enabling) factor and extracted four major themes. This approach was used due to a wide variation of research studies across a high number of countries.

## **RESULTS**

### **Quality appraisal results**

Overall, the quality of the studies combined was good with the appropriate methods being used to answer the questions being raised (Figure 1). The qualitative studies had the highest quality, followed by the mixed methods and then the quantitative designs. Individually, the quantitative studies mainly lacked regarding response rates (a 60% response rate was used as threshold; Fincham, 2008) and therefore had a higher degree of risk of bias. Some also lacked in the sample being representative of the target population as well as the use of relevant sampling strategies. The qualitative studies slightly lacked in the data collection methods used and one study was deemed not to use the most appropriate qualitative approach. Only one study (Voit & Carson 2014) from the mixed methods studies did not meet most criteria.

### **Combined descriptive results**

Sixteen papers were based on quantitative research approaches, seven employed qualitative methods and four employed mixed methods. The research took place in thirteen different

geographical locations (Table 2) with most taking place in Australia, the USA and Canada. All of the quantitative studies were of a questionnaire design. Most the qualitative studies employed interviews (7) with one using a questionnaire and two using focus groups. The mixed methods studies mainly used questionnaires with one study employing an interview. The combined quantitative population sample was 47,973 with a response of 31,172 for all first wave responses (a total of 30,844 when calculations are based on the second response rate). The combined mixed methods sample population was 1,550 with a response/participant rate of 839. There were 3,449 participants included in the qualitative studies of which 176 were interviewed.

The quantitative studies employed a variety of hypotheses and models to examine the relationships between workers, age, planning of retirement & retirement intentions, employer, work environment and perceptions of job satisfaction. Of the 16 quantitative studies four studies (Armstrong-Stassen & Stassen, 2013; Dordoni et al., 2019; Falk, Rudner, Chapa, & Greene, 2017; Wargo-Sugleris et al., 2018) directly measured job satisfaction with their questionnaires, although with different instruments.

The significant findings of those studies pointed to the same reasons of which low job satisfaction clearly contributed to earlier retirement intentions. For example, significant findings were established for nurse practitioners, where the group of 55- to 59-year-olds, who had a lower nursing degree ( $p = 0.02$ ), lower job satisfaction ( $p = 0.01$ ), were working in primary care ( $p = 0.03$ ) and working part-time ( $p = 0.01$ ) were associated with intending to retire in 5 years or less (Falk et al., 2017). In contrast higher job satisfaction significantly contributed to the intention to remain as found by several studies (Armstrong-Stassen & Stassen, 2013; Dordoni et al., 2019; Falk et al., 2017; Wargo-Sugleris et al., 2018).

Five quantitative studies (Ang et al., 2016; Boumans, de Jong, & Vanderlinden, 2008; Duffield et al., 2015; Friis, Ekholm, Hundrup, Obel, & Grønbaek, 2007; Graham et al., 2014) examined the individual circumstances of the worker in detail and established significant findings. There was a significant association between gender and intention to retire early ( $p < 0.01$ ) and between home situation and intention to retire early ( $p < 0.01$ ) (Boumans et al., 2008). Friis et al. reported that the most significant factors related to joining an early pension scheme were to be poor self-rated health (HR 1.28, 95% CI 1.16–1.41), relatively low gross income (HR 1.60, CI 1.43–1.79) and having a spouse who had retired (HR 1.64, 95% CI 1.49–1.80) or was unemployed (HR 1.62, 95% CI 1.38–1.91) (Friis et al., 2007). Similar results were found with Duffield et al. 2015 where

the key factors to leave the workforce were reaching financial security (40.1%), followed by nurse health (17.4%) and the retirement age of partner (13.3%). Only one study established that ethnicity made a difference in retirement intentions by reporting Malay nurses were significantly less likely (OR 0.3, 95% CI 0.1–0.6) than Chinese nurses to want to work longer (Ang et al., 2016).

Three of the 16 studies included the topic of retirement planning (P. C. Liu et al., 2018; Palumbo, McIntosh, Rambur, & Naud, 2009; Topa, Segura, & Pérez, 2018) and found that by supporting retirement planning nurses are more likely to remain in work until retirement. Further three quantitative studies (Armstrong-Stassen & Schlosser, 2010; Liebermann, Müller, Weigl, & Wegge, 2015; Sulander et al., 2016) reported from an organisational perspective and found that remaining in the same job until retirement age is positively related to work-time control (Beta = 0.14,  $p = 0.003$ ), role clarity (Beta = 0.15,  $p = 0.003$ ) and colleague support (Beta = 0.18,  $p < 0.001$ ) (Liebermann et al., 2015), as well as age ( $p < 0.01$ ) and organisational tenure ( $p < 0.05$ ) (Armstrong Stassen & Schlosser, 2010). The mean age range when nurses intend to retire based on the literature reviewed was 60 years (Blakeley & Ribeiro, 2008b; Boumans et al., 2008; Duffield et al., 2015; Friis et al., 2007; Graham et al., 2014).

### **Data synthesis results**

Using an explanatory framework the authors established the following ranking (see Figure 3): increasing age encourages nurses to think about the timing of their **retirement**, the decision to cease working as a nurse or to continue depends firstly on the personal situation, secondly on the terms and conditions provided by the employing organisation.

### **Figure 3. Ranking of factors for decision making around the timing of retirement**

From the literature analysed the authors derived four themes:

- Health, Well-being and Family factors (mostly based in personal factors)
- Employer factors (mostly organisational factors, but some personal factors included)
- Professional factors (mixture of organisational and personal factors)

- Financial factors (mixture of organisational and personal factors)

Figure 4 visualises the themes mapped onto the factors. The first and second theme are the largest groupings i.e. with a high number of factors that influence the decision making. Although professional and financial factors are smaller in numbers they are also crucially important to the decision making.

#### **Figure 4. Push and pull factor themes placed onto key factors by size and interplay**

##### **Health, Well-being and Family factors**

After sorting the findings by ‘push’ and ‘pull’ into the two main factor categories (personal and organisational) it became clear that personal health problems combined with age are the strongest push factor, i.e. this association is most likely to influence nurses’ to make the decision to stop working (Boumans et al., 2008; Clendon & Walker, 2016; Duffield et al., 2015; Falk et al., 2017; Friis et al., 2007; Voit & Carson, 2014; Warburton et al., 2014; Wargo-Sugleris et al., 2018). This is followed by the wish to make time for family, leisure and hobbies (Blakeley & Ribeiro, 2008b; Boumans et al., 2008; Duffield et al., 2015; Friis et al., 2007; Voit & Carson, 2014) and the wish (or need) to care for a family member (Bennett, Davey, & Harris, 2009; Boumans et al., 2008; P. C. Liu et al., 2018; Warburton et al., 2014). The wish to slow down (Boumans et al., 2008; Duffield et al., 2015; Falk et al., 2017; Voit & Carson, 2014; Wargo-Sugleris et al., 2018) and the feeling of ‘exhaustion’ (Blakeley & Ribeiro, 2008b; Clendon & Walker, 2016; Duffield et al., 2015) are also strong push factors for retirement. Living in rural areas (Warburton et al., 2014) or having peer groups with positive attitudes towards early retirement (Boumans et al., 2008) also supports early retirement decisions. At the same time, if a nurse is in good health, single or the main bread winner, she / he is likely to continue working past retirement age (Boumans et al., 2008; Duffield et al., 2015; Falk et al., 2017; Graham et al., 2014). Being part of an organisation and working also has a positive outcome on a person’s well-being and health by providing a social network and the feeling of being empowered (Ang et al., 2016; Blakeley & Ribeiro, 2008b, 2008a; Boumans et al., 2008; Friedrich, Prasun, Henderson, &

Taft, 2011; P. C. Liu et al., 2018; Topa et al., 2018; Warburton et al., 2014; Wargo-Sugleris et al., 2018). Therefore, the work place can directly support nurses in maintaining good health and well-being (Clendon & Walker, 2016; Falk et al., 2017; Liebermann et al., 2015; Sulander et al., 2016) and provide them with tools and knowledge for retirement preparations (Blakeley & Ribeiro, 2008a; Topa et al., 2018), which is likely to function as an enabler for nurses to extend their working lives.

### **Employer factors**

This theme represents the influence of employers on the push and pull factors in relation to nurses' retirement timing decision making. Many of the factors identified in the literature such as job satisfaction, organisational satisfaction, flexible working, work pressure, not feeling valued and having supportive colleagues are interconnected. For example, the factor *job satisfaction*, which addresses the feelings about the current role, pleasure in the work or the commitment towards the role is a strong pull factor when rated highly (Ang et al., 2016; Armstrong-Stassen & Stassen, 2013; Bennett et al., 2009; Boumans et al., 2008; Clendon & Walker, 2016; Falk et al., 2017; Friedrich et al., 2011; Graham et al., 2014; Liebermann et al., 2015; P. C. Liu et al., 2018; Palumbo et al., 2009; Voit & Carson, 2014; Warburton et al., 2014; Wargo-Sugleris et al., 2018). At the same time a positive feeling about work is likely to be influenced by a range of working conditions such as flexible working and a choice of working hours (Blakeley & Ribeiro, 2008b; Clendon & Walker, 2016; Friis et al., 2007; Graham et al., 2014; Liebermann et al., 2015; Voit & Carson, 2012, 2014; Warburton et al., 2014), organisational satisfaction (Armstrong-Stassen & Schlosser, 2010; Armstrong-Stassen & Stassen, 2013; Blakeley & Ribeiro, 2008b; Clendon & Walker, 2016; Friedrich et al., 2011; Klug, 2009; P. C. Liu et al., 2018; Palumbo et al., 2009; Topa et al., 2018; Warburton et al., 2014) and having supportive colleagues (Blakeley & Ribeiro, 2008b; Clendon & Walker, 2016; Eley, Eley, & Rogers-Clark, 2010; Friedrich et al., 2011; Liebermann et al., 2015; P. C. Liu et al., 2018; Warburton et al., 2014). The role of the supervisor is particularly important since the direct line manager plays a key role on how well organisational information and structure is translated into everyday working procedures (Armstrong-Stassen & Schlosser, 2010; Sulander et al., 2016).



Based on the literature analysed the most referred to push factor is dissatisfaction with the organization and leadership (Armstrong-Stassen & Stassen, 2013; Bennett et al., 2009; Blakeley & Ribeiro, 2008b; Boumans et al., 2008; Falk et al., 2017; Klug, 2009; Liebermann et al., 2015; P. C. Liu et al., 2018; Sulander et al., 2016; Wargo-Sugleris et al., 2018), which may be visible in communication break down between different organisational levels, no sense of belonging, by lack of development possibilities as well as by lack of perceived organisational and interactional justice. In contrast, organisational satisfaction (Armstrong-Stassen & Schlosser, 2010; Armstrong-Stassen & Stassen, 2013; Blakeley & Ribeiro, 2008b; Clendon & Walker, 2016; Friedrich et al., 2011; Klug, 2009; P. C. Liu et al., 2018; Palumbo et al., 2009; Topa et al., 2018) is a frequently referred to and therefore a strong pull factor since older nurses feel they have a voice that matters, receive support from line management and are being offered preparations for retirement planning. A more tangible barrier to extending working life is dissatisfaction with the work environment, which relates to the physical work place and the constant introduction of changes as well as new technology (Boumans et al., 2008; Clendon & Walker, 2016; Liebermann et al., 2015; P. C. Liu et al., 2018; Valencia & Raingruber, 2010; Voit & Carson, 2014). If the organisation is able to offer an environment and role where the stress levels are greatly reduced (Blakeley & Ribeiro, 2008b; Friedrich et al., 2011; Voit & Carson, 2012, 2014) then older nurses are more likely to extend their working life.

### **Professional factors**

Nursing is frequently portrayed as a vocation that attracts (mostly) women who are not driven by financial rewards alone, but by altruism, the ability to make a difference and to help others; this portrayal evident in the studies selected (Eley et al., 2010; Storey, Cheater, Ford, & Leese, 2009). The findings from the review indicate that nurses work because they highly value their role as a nurse with associated high professional standards (Bennett et al., 2009; Boumans et al., 2008; Clendon & Walker, 2016; Friedrich et al., 2011; Warburton et al., 2014). To maintain high standards, nurses need and want to develop themselves personally and professionally. The literature analysed suggests that nurses over 45 years and older have less access to training and continued professional development (CPD) (Bennett et al., 2009; Blakeley & Ribeiro, 2008b; Boumans et al., 2008; Clendon & Walker, 2016; Liebermann et al., 2015; Warburton et al.,

2014). This is notable, as providing access to CPD and training is a strong pull factor (Armstrong-Stassen & Stassen, 2013; Bennett et al., 2009; Blakeley & Ribeiro, 2008b; Clendon & Walker, 2016; Fackler, 2019; Palumbo et al., 2009; Voit & Carson, 2012), albeit Clendon & Walker (2016) observed that formalised CPD can add to older nurses' stress, some older nurses preferring training to be more vocational or informal.

### **Financial factors**

Financial factors affect both, personal and organisational factors. Nurses will have to continue working when there is a need for income (Ang et al., 2016; Graham et al., 2014; Voit & Carson, 2012; Warburton et al., 2014; Wargo-Sugleris et al., 2018), necessity to contribute to a pension fund (Graham et al., 2014), or to remain in work to have health care or social security (Falk et al., 2017; Valencia & Raingruber, 2010). This need is a strong pull factor and overrides personal desires such as following a hobby or other interests.

At the same time financial factors will work as a push factor when financial security has been reached and nurses feel the need to look after themselves or their family (see Health, Well-being and Family factors) (Blakeley & Ribeiro, 2008b; Duffield et al., 2015; Friis et al., 2007; Voit & Carson, 2012; Wargo-Sugleris et al., 2018). Financial incentives from work (Blakeley & Ribeiro, 2008b; Friedrich et al., 2011; Palumbo et al., 2009; Topa et al., 2018; Valencia & Raingruber, 2010; Voit & Carson, 2012) will encourage some nurses to continue working, but based on this analysis financial incentives are not the dominant motivators for nurses to extend their working life when comparing it to the theme of professional factors.

## **DISCUSSION**

There was a modest amount of studies on this subject given its importance, the broadness of the search terms and its inclusion/exclusion criteria. The review generated a breadth of papers, a reflection of the broad nature of the search terms and inclusion/exclusion criteria; there was also heterogeneity across the studies included which prohibited any meaningful quantitative analysis. The differing geographical study locations revealed a global issue in this area, however no one

country had enough data to draw any firm conclusions. However, the integrative review approach allowed for meaning to be made of what was available through the use of an appropriate qualitative framework to synthesize all results regardless of their differences, helping to give a bigger picture of the issues at hand. Furthermore, this integrative review employed evidence from a total of 35,460 respondents, but the estimated global workforce of nursing and midwifery is around 20.7 million (World Health Organization, 2016), which could be argued to be a response rate of 0.17% and this shows the urgent need for more large scale research in the nursing workforce.

Despite the limited amount of evidence, this review offers a framework for nurses' retirement decision making process by simplifying the number of factors (personal and organisational) and ranking these (see figure 3) with the four themes of push and pull factors involved (see figure 4). Other papers have used similar headings to group findings e.g. personal, professional and organisational factors (Bennett et al., 2009), personal, psycho-social and organisational (Sulander et al., 2016), personal, financial, organisational (Blakeley & Ribeiro, 2008b), individual, work-related and organisational factors (Boumans et al., 2008) or individual, job-related, interpersonal and organisational (Halter et al., 2017), however they did not offer a direct ranking of factors.

The wider pool of literature around the extension of older workers' working life in various sectors (e.g. transport, hospitality, local government) suggests better pay and other financial incentives are the strongest reasons (Vickerstaff, 2010). The greatest push factors are declining health, impact of caring responsibilities on the ability to work, job satisfaction and redundancy (Humphrey, Costigan., Pickering, Stratford, & Barnes., 2003, p55ff; Phillipson & Smith, 2005, pp 22-29; Smeaton & Vegeris., 2009, pp15-18). With the exception of redundancy, these factors are in line with the results of this integrative review i.e. personal factors such as declining health override the ability or wish to continue working, the need for income forces nurses to continue working and low job satisfaction leads to a timely exit for retirement. Furthermore, this review found that activities which allow nurses to maintain their professional standard have a stronger pull than financial incentives alone.

The HR department or nurse manager can greatly influence the employer, professional and financial factors (i.e. the organisational factors), which in turn will influence personal factors, or in other words, if the work place looks after their workers, the workers will be healthy, motivated and able to work for longer. Nurse managers, working with hospital/employer HR departments will need to consider retention strategies based on their specific organisational and workforce requirements. The Good Governance Institute (2015) predicts Mental Health, Learning Difficulties and Community Nursing to be particularly vulnerable to shortages in the UK (Good Governance Institute, 2015), thus specific strategies need to be considered for older nurses working in these specialities. Likewise there are specific challenges in retaining nurses (young and old) in rural areas (NHS UK, 2019; Voit & Carson, 2012; Warburton et al., 2014), whereas in urban areas nurses are more likely to continue working (Friis et al., 2007). The ethnicity of the nurse is also likely to play a role in their decision making, especially when working globally, but this review only found one instance where ethnicity had a direct influence on the retirement decision making, namely Malay nurses were more likely to give up their professional role (over Chinese nurses) to look after their relatives (Liu et al., 2018).

Stordeur et al. (2003) discovered a U-shaped relationship between age and job satisfaction, where job satisfaction is high when nurses start in their roles and towards the end of their working lives, when they have experience and resilience. From the age of 30 job satisfaction decreases, which is likely to be at a time where nurses juggle family demands while developing their career path (or not) (Stordeur et al., 2003).

The nurse retention literature predominately addresses nurses of all ages and suggests a variety of organisational strategies. These strategies call for empowering work environments, shared governance structure, autonomy, respect, professional development, leadership support, continued patient interactions, adequate number of staff and skills as well as collegial relationships within the wider healthcare teams (Chenoweth, Merlyn, Jeon, Tait, & Duffield, 2014; Eltaybani, Noguchi-Watanabe, Igarashi, Saito, & Yamamoto-Mitani, 2018; Fragar & Depczynski, 2011; Halcomb & Ashley, 2017; Twigg & McCullough, 2014). In short, any

strategies that increase job and organisational satisfaction are likely to improve retention rates or delay retirement intentions.

Little research has been conducted into the reasons why younger nurses leave. Flinkman et al. (2008; 2015) researched young registered Finnish nurses' intent to leave the profession and reasons included a perceived imbalance between salary and responsibility, the realisation that working as a nurse is extremely demanding both physically and mentally (especially if nursing was a serendipitous career choice) as well as inflexible shift work rotas and working hours (M. Flinkman, Laine, Leino-Kilpi, Hasselhorn, & Salanterä, 2008; Mervi Flinkman & Salanterä, 2015). Extrapolating from this, it can be suggested that younger nurses are more likely to be retained when given more pay, but also more support from managers and colleagues to deal with the demands of the nursing role (Mervi Flinkman, Leino-Kilpi, & Salanterä, 2010; Mervi Flinkman & Salanterä, 2015), role clarity (Liebermann et al., 2015) and opportunities for career development (Mills, Chamberlain-Salaun, Harrison, Yates, & O'Shea, 2016) as well as flexible work scheduling. In contrast, nurses near retirement are more likely to continue working when their job satisfaction and professional standards are addressed. This includes having a supervisor who understands their professional and personal needs as well as an organisation where they feel heard, respected and part of.

### **Limitations**

There are limitations with this integrative review. The articles derived from different perspectives (e.g. human resource literature, nursing, social policy) employed a range of research approaches, different theoretical concepts and terminology. However, it was felt that the two main categories chosen (personal and organisational factors) allowed the authors to work effectively with the variety of terms, methods and approaches. This review could have been further strengthened by broadening the search terms used and searching the grey literature.

### **CONCLUSION**

Accepted Article

Global nursing workforce shortages as well as the skills and expertise of older nurses means that it is an imperative that this skilled cadre of the nursing workforce are encouraged to remain in nursing. There is however no 'one-size-fits-all' strategy to ensure the extension of older nurses' working lives. Any organisation, HR department and nurse manager will need to consider retention strategies based on their individual organisational and workforce requirements. The organisation needs to foster an environment where older nurses feel respected and heard. This can be achieved by offering opportunities to mentor and advise younger staff, colleagues or patients as well as with positive adjustments to the work environment to support nurses' health and well-being. To address specifically older nurses' job satisfaction their supervisors need to be trained and empowered adequately. The supervisor should be able to provide support for the nurse' professional and personal needs. The latter may be flexibility in the work schedule, support in retirement preparation or specific professional development.

**Conflict of Interest statement**

None

## REFERENCES

- Adams G.A. (1999) Career- related variables and planned retirement age: an extension of Beehr's model. *Journal of Vocational Behavior* 55, 221–235.
- Adams, G. A. (1999). Career-Related Variables and Planned Retirement Age: An Extension of Beehr's Model. *Journal of Vocational Behavior*. <https://doi.org/10.1006/jvbe.1998.1679>
- Ang, S. Y., Ayoob, S. B. M., Hussain, N. B. S., Uthaman, T., Adenan, H., Chiang, P., ... Ostbye, T. (2016). Older nurses in Singapore: Factors associated with attitudes towards extending working life. *Proceedings of Singapore Healthcare*, 25(4), 222–229. <https://doi.org/10.1177/2010105816655553>
- Ang, S. Y., Ayoob, S. B. M., Hussain, N. B. S., Uthaman, T., Adenan, H., Chiang, P., ... Ostbye, T. (2017). Challenges faced by older nurses in Singapore: a mixed methods study. *International Nursing Review*. <https://doi.org/10.1111/inr.12348>
- Armstrong-Stassen, M., & Schlosser, F. (2010). When hospitals provide HR practices tailored to older nurses, will older nurses stay? It may depend on their supervisor. *Human Resource Management Journal*, 20(4), 375–390. <https://doi.org/10.1111/j.1748-8583.2010.00143.x>
- Armstrong-Stassen, M., & Stassen, K. (2013). Professional development, target-specific satisfaction and older nurse retention. *Career Development International*, 18(7), 673–693. <https://doi.org/10.1108/CDI-08-2013-0102>
- Banks, J., & Smith, S. (2006). Retirement in the UK. *Oxford Review of Economic Policy*, 22(1), 40–56. <https://doi.org/10.1093/oxrep/grj003>
- Bell, L. . (2013). The ageing of the nursing workforce: what lies ahead and what we can do. *International Nursing Review*, 60(3), 277–278.
- Bennett, J., Davey, B., & Harris, R. (2009). Commitment expressions of nurses aged 45 and over: Organisational, professional and personal factors. *Journal of Research in Nursing*, 14(5), 391–401. <https://doi.org/10.1177/1744987108096966>
- Blakeley, J., & Ribeiro, V. (2008a). Are nurses prepared for retirement? *Journal of Nursing*

*Management*, 16(6), 744–752. <https://doi.org/10.1111/j.1365-2834.2008.00916.x>

Blakeley, J., & Ribeiro, V. (2008b). Early retirement among Registered Nurses: contributing factors. *Journal of Nursing Management*, 16(1), 29–37. <https://doi.org/10.1111/j.1365-2934.2007.00793.x>

Boumans, N. P. G., de Jong, A. H. J., & Vanderlinden, L. (2008). Determinants of early retirement intentions among Belgian nurses. *Journal of Advanced Nursing*, 63(1), 64–74. <https://doi.org/10.1111/j.1365-2648.2008.04651.x>

Chenoweth, L., Merlyn, T., Jeon, Y.-H., Tait, F., & Duffield, C. (2014). Attracting and retaining qualified nurses in aged and dementia care: outcomes from an Australian study. *Journal of Nursing Management*, 22(2), 234–247. <https://doi.org/10.1111/jonm.12040>

Clendon, J., & Walker, L. (2016). The juxtaposition of ageing and nursing: the challenges and enablers of continuing to work in the latter stages of a nursing career. *Journal of Advanced Nursing*, 72(5), 1065–1074. <https://doi.org/10.1111/jan.12896>

Dordoni, P., Kraus-Hoogeveen, S., Van Der Heijden, B. I., Peters, P., Setti, I., & Fiabane, E. (2019). Live to work or work to live? An age-moderated mediation model on the simultaneous mechanisms prompted by workaholism among healthcare professionals. *Frontiers in Psychology*, 10(APR), 1–12. <https://doi.org/10.3389/fpsyg.2019.00868>

Duffield, C., Graham, E., Donoghue, J., Griffiths, R., Bichel-Findlay, J., & Dimitrelis, S. (2015). Why older nurses leave the workforce and the implications of them staying. *Journal of Clinical Nursing*, 24(5–6), 824–831. <https://doi.org/10.1111/jocn.12747>

Eley, R., Eley, D., & Rogers-Clark, C. (2010). Reasons for Entering and Leaving Nursing: An Australian Regional Study. *The Australian Journal of Advanced Nursing*, 28(1). Retrieved from <https://search.informit.com.au/documentSummary;dn=053061997567240;res=IELHEA>

Eltaybani, S., Noguchi-Watanabe, M., Igarashi, A., Saito, Y., & Yamamoto-Mitani, N. (2018). Factors related to intention to stay in the current workplace among long-term care nurses: A nationwide survey. *International Journal of Nursing Studies*. <https://doi.org/10.1016/j.ijnurstu.2018.01.008>

Fackler, C. A. (2019). Retaining older hospital nurses: Experienced hospital nurses' perceptions



of new roles. *Journal of Nursing Management*, 27(6), 1325–1331.

<https://doi.org/10.1111/jonm.12814>

Falk, N. L., Rudner, N., Chapa, D., & Greene, J. (2017). Nurse practitioners and intent to retire.

*Journal of the American Association of Nurse Practitioners*, 29(3), 130–135.

<https://doi.org/10.1002/2327-6924.12406>

Finish Centre for Pensions. (2019). Retirement Ages | ETK. Retrieved from

<https://www.etk.fi/en/the-pension-system/international-comparison/retirement-ages/>

Flinkman, M., Laine, M., Leino-Kilpi, H., Hasselhorn, H. M., & Salanterä, S. (2008). Explaining young registered Finnish nurses' intention to leave the profession: A questionnaire survey.

*International Journal of Nursing Studies*. <https://doi.org/10.1016/j.ijnurstu.2006.12.006>

Flinkman, Mervi, Leino-Kilpi, H., & Salanterä, S. (2010). Nurses' intention to leave the profession: integrative review. *Journal of Advanced Nursing*, 66(7), 1422–1434.

<https://doi.org/10.1111/j.1365-2648.2010.05322.x>

Flinkman, Mervi, & Salanterä, S. (2015). Early career experiences and perceptions - a qualitative exploration of the turnover of young registered nurses and intention to leave the nursing profession in Finland. *Journal of Nursing Management*, 23(8), 1050–1057.

<https://doi.org/10.1111/jonm.12251>

Fragar, L. J., & Depczynski, J. C. (2011). Beyond 50. challenges at work for older nurses and allied health workers in rural Australia: a thematic analysis of focus group discussions.

*BMC Health Services Research*, 11(1), 42. <https://doi.org/10.1186/1472-6963-11-42>

Friedrich, Li. A., Prasun, M. A., Henderson, L., & Taft, L. (2011). Being a seasoned nurse in active practice. *Journal of Nursing Management*, 19(7), 897–905.

<https://doi.org/10.1111/j.1365-2834.2011.01294.x>

Friis, K., Ekholm, O., Hundrup, Y. A., Obel, E. B., & Grønbæk, M. (2007). Influence of health, lifestyle, working conditions and sociodemography on early retirement among nurses: The Danish Nurse Cohort Study. *Scandinavian Journal of Public Health*.

<https://doi.org/10.1080/14034940600777278>

Good Governance Institute. (2015). The nursing journey: recruitment and retention. In A

*Whitepaper from the Good Governance Institute*. West Sussex: Good Governance Institute.

- Graham, E., Donoghue, J., Duffield, C., Griffiths, R., Bichel-Findlay, J., & Dimitrelis, S. (2014). Why do older RNs keep working? *Journal of Nursing Administration*.  
<https://doi.org/10.1097/NNA.0000000000000131>
- Haddad, L. M., & Toney-Butler, T. J. (2019). *Nursing Shortage*. StatPearls Publishing. Retrieved from <http://www.ncbi.nlm.nih.gov/pubmed/29630227>
- Halcomb, E., & Ashley, C. (2017). Australian primary health care nurses most and least satisfying aspects of work. *Journal of Clinical Nursing*, 26(3–4), 535–545.  
<https://doi.org/10.1111/jocn.13479>
- Halter, M., Boiko, O., Pelone, F., Beighton, C., Harris, R., Gale, J., ... Drennan, V. (2017). The determinants and consequences of adult nursing staff turnover: a systematic review of systematic reviews. *BMC Health Services Research*, 17(1), 824.  
<https://doi.org/10.1186/s12913-017-2707-0>
- Health Education England. (2015). *The future of primary care Creating teams for tomorrow Report by the Primary Care Workforce Commission*. Retrieved from <https://www.hee.nhs.uk/sites/default/files/documents/The Future of Primary Care report.pdf>
- Hedges, A., Groom, W., & Sykes, C. (2009). *Extending Working Life: Changing the Culture*. London, UK: Department of work and pensions.
- Heizo, T. (2019). Elderly workers: Expectations and challenges | The Japan Times. *Japantimes*. Retrieved from <https://www.japantimes.co.jp/opinion/2019/03/26/commentary/japan-commentary/elderly-workers-expectations-challenges/#.XhyYNIP7S-V>
- Hong, Q. N., Pluye, P., Bujold, M., & Wassef, M. (2017). Convergent and sequential synthesis designs: implications for conducting and reporting systematic reviews of qualitative and quantitative evidence. *Systematic Reviews*. <https://doi.org/10.1186/s13643-017-0454-2>
- Hong, Q. N., Pluye, P., Fàbregues, S., Bartlett, G., Boardman, F., Cargo, M., ... Vedel, I. (2018). Mixed Method Appraisal tool (MMAT) VERSION 2018. *Canadian Intellectual Property Office, Industry Canada*. Retrieved from <http://mixedmethodsappraisaltoolpublic.pbworks.com/>
- Hopia, H., Latvala, E., & Liimatainen, L. (2016). Reviewing the methodology of an integrative review. *Scandinavian Journal of Caring Sciences*, 30(4), 662–669.

<https://doi.org/10.1111/scs.12327>

Humphrey, A., Costigan, P., Pickering, K., Stratford, N., & Barnes, M. (2003). *Factors Affecting the Labour Market Participation of Older Workers*. Leeds: DWP Corporate Document Service.

Karp, D. A. (1989). The Social Construction of Retirement Among Professionals 50-60 Years Old. *The Gerontologist*, 29(6), 750–760. <https://doi.org/10.1093/geront/29.6.750>

Klug, S. H. (2009). Recruit, respect and retain: the impact of baby boomer nurses on hospital workforce strategy--a case study. *Creative Nursing*. <https://doi.org/10.1891/1078-4535.15.2.70>

Lain, D., & Phillipson, C. (2019). *Extended Work Lives and the Rediscovery of the “Disadvantaged” Older Worker* (Vol. 43). Retrieved from [www.asaging.org/join](http://www.asaging.org/join).

Liebermann, S. C., Müller, A., Weigl, M., & Wegge, J. (2015). Antecedents of the expectation of remaining in nursing until retirement age. *Journal of Advanced Nursing*. <https://doi.org/10.1111/jan.12634>

Liu, J. X., Goryakin, Y., Maeda, A., Bruckner, T., & Scheffler, R. (2017). Global Health Workforce Labor Market Projections for 2030. *Human Resources for Health*, 15(1), 11. <https://doi.org/10.1186/s12960-017-0187-2>

Liu, P. C., Zhang, H. H., Zhang, M. L., Ying, J., Shi, Y., Wang, S. Q., & Sun, J. (2018). Retirement planning and work-related variables in Chinese older nurses: A cross-sectional study. *Journal of Nursing Management*, 26(2), 180–191. <https://doi.org/10.1111/jonm.12532>

Mills, J., Chamberlain-Salaun, J., Harrison, H., Yates, K., & O’Shea, A. (2016). Retaining early career registered nurses: A case study. *BMC Nursing*, 15(1), 1–7. <https://doi.org/10.1186/s12912-016-0177-z>

Moher, D. (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *Annals of Internal Medicine*, 151(4), 264. <https://doi.org/10.7326/0003-4819-151-4-200908180-00135>

Moseley, A., Jeffers, L., & Paterson, J. (2008). The retention of the older nursing workforce: A

literature review exploring factors that influence the retention and turnover of older nurses. *Contemporary Nurse*, 30(1), 46–56. <https://doi.org/10.5172/conu.673.30.1.46>

NHS UK. (2019). *Interim NHS People Plan*. NHS UK. Retrieved from

<https://www.longtermplan.nhs.uk/publication/interim-nhs-people-plan/>

NMC. (2017). *The NMC register 2012/13-2016/17*. Retrieved from

<https://www.nmc.org.uk/globalassets/sitedocuments/other-publications/nmc-register-2013-2017.pdf>

Noyes, J., Booth, A., Moore, G., Flemming, K., Tunçalp, Ö., & Shakibazadeh, E. (2019).

Synthesising quantitative and qualitative evidence to inform guidelines on complex interventions: clarifying the purposes, designs and outlining some methods. *BMJ Global Health*. <https://doi.org/10.1136/bmjgh-2018-000893>

OECD. (2017a). *Factsheet Japan*. Retrieved from <https://www.oecd.org/els/public-pensions/PAG2017-country-profile-Japan.pdf>

OECD. (2017b). *Old-age Dependency ratio*. <https://doi.org/10.1787/888933634306>

OECD. (2018a). *Ageing and Employment Policies - Statistics on average effective age of retirement - OECD*. Retrieved from <http://www.oecd.org/els/emp/average-effective-age-of-retirement.htm>

OECD. (2018b). *Working Better with Age: Korea*. OECD.

<https://doi.org/10.1787/9789264208261-en>

Palumbo, M. V., Mcintosh, B., Rambur, B., & Naud, S. (2009). Retaining an aging nurse workforce: Perceptions of human resource practices. *Nursing Economics*.

Philipson, C. (2007). Is extending Working Life Possible? Research and Policy Issues. In W. Loretto, S. Vickerstaff, & P. White (Eds.), *The Future for Older Workers: New Perspectives* (pp. 185–201). Policy Press.

Phillipson, C., & Smith, A. (2005). *Extending working life: A review of the research*.

Royal College of Nursing. (2017). *The UK nursing labour market review 2017*. Retrieved from

<https://www.rcn.org.uk/-/media/royal-college-of-nursing/documents/publications/2017/december/pdf-006625.pdf>

- Ryan, C., Bergin, M., White, M., & Wells, J. S. G. (2018). Ageing in the nursing workforce – a global challenge in an Irish context. *International Nursing Review*.  
<https://doi.org/10.1111/inr.12482>
- Schofield, D. J., & Earnest, A. (2006). Demographic change and the future demand for public hospital care in Australia, 2005 to 2050. *Australian Health Review : A Publication of the Australian Hospital Association*. <https://doi.org/10.1071/AH060507>
- Shacklock, K., & Brunetto, Y. (2005). Employees' perceptions of the factors affecting their decisions to retire. *International Journal of Organisational Behaviour*.
- Smeaton, D., & Vegeris., S. (2009). *Old People Inside and Outside the Labour Market: A Review*. Manchester.
- Soares, C. B., Hoga, L. A. K., Peduzzi, M., Sangaleti, C., Yonekura, T., & Silva, D. R. A. D. (2014). Integrative Review: Concepts And Methods Used In Nursing. *Revista Da Escola de Enfermagem Da USP*, 48(2), 335–345. <https://doi.org/10.1590/S0080-6234201400002000020>
- Stordeur, S., D'hoore, W., Heijden, B., Dibisceglie, M., Laine, M., & van der Schoot, E. (2003). Leadership, job satisfaction and nurses' commitment. In *Working Conditions and Intention to Leave Profession Among Nursing Staff in Europe. Nurses Early Exit Study Report* (pp. 28–45).
- Storey, C., Cheater, F., Ford, J., & Leese, B. (2009). Retaining older nurses in primary care and the community. *Journal of Advanced Nursing*, 65(7), 1400–1411.  
<https://doi.org/10.1111/j.1365-2648.2009.05009.x>
- Sulander, J., Sinervo, T., Elovainio, M., Heponiemi, T., Helkama, K., & Aalto, A.-M. (2016). Does Organizational Justice Modify the Association Between Job Involvement and Retirement Intentions of Nurses in Finland? *Research in Nursing & Health*, 39(5), 364–374.  
<https://doi.org/10.1002/nur.21740>
- Tong, A., Flemming, K., McInnes, E., Oliver, S., & Craig, J. (2012). Enhancing transparency in reporting the synthesis of qualitative research: ENTREQ. *BMC Medical Research Methodology*. <https://doi.org/10.1186/1471-2288-12-181>
- Topa, G., Segura, A., & Pérez, S. (2018). Gender differences in retirement planning: A

longitudinal study among Spanish Registered Nurses. *Journal of Nursing Management*, 26(5), 587–596. <https://doi.org/10.1111/jonm.12586>

Twigg, D., & McCullough, K. (2014). Nurse retention: A review of strategies to create and enhance positive practice environments in clinical settings. *International Journal of Nursing Studies*, 51(1), 85–92. <https://doi.org/10.1016/j.ijnurstu.2013.05.015>

Valencia, D., & Raingruber, B. (2010). Registered nurses' views about work and retirement. *Clinical Nursing Research*. <https://doi.org/10.1177/1054773810371708>

Vickerstaff, S. (2006). Entering the Retirement Zone: How Much Choice do Individuals Have? *Social Policy and Society*, 5(4), 507–517. <https://doi.org/10.1017/S1474746406003265>

Vickerstaff, S. (2010). Older Workers: The 'Unavoidable Obligation' of Extending Our Working Lives? *Sociology Compass*, 4(10), 869–879. <https://doi.org/10.1111/j.1751-9020.2010.00322.x>

Voit, K., & Carson, D. (2012). Retaining older experienced nurses in the NT of Australia; a qual study exploring opportunities for post-retirement contributions. *Rural and Remote Health*, 12(1881). Retrieved from <https://dspace2.flinders.edu.au/xmlui/handle/2328/26789>

Voit, K., & Carson, D. (2014). Post-retirement intentions of nurses and midwives living and working in the Northern Territory of Australia. *Rural and Remote Health*. Retrieved from <https://www.rrh.org.au/journal/article/2399>

Walker, L., Clendon, J., & Willis, J. (2018). Why older nurses leave the profession. *Kai Tiaki Nursing Research*.

Warburton, J., Moore, M., Clune, S., & Hodgkin, S. (2014). Extrinsic and intrinsic factors impacting on the retention of older rural healthcare workers in the north Victorian public sector: a qualitative study. *Rural and Remote Health*, 14. Retrieved from [https://www.researchgate.net/profile/Melisa\\_Moore2/publication/265095725\\_'Extrinsic\\_and\\_Intrinsic\\_Factors\\_Impacting\\_on\\_the\\_Retention\\_of\\_Older\\_Rural\\_Healthcare\\_Workers\\_in\\_the\\_North\\_Victorian\\_Public\\_Sector\\_A\\_Qualitative\\_Study/links/55431a300cf234bdb21a3119](https://www.researchgate.net/profile/Melisa_Moore2/publication/265095725_'Extrinsic_and_Intrinsic_Factors_Impacting_on_the_Retention_of_Older_Rural_Healthcare_Workers_in_the_North_Victorian_Public_Sector_A_Qualitative_Study/links/55431a300cf234bdb21a3119).

Wargo-Sugleris, M., Robbins, W., Lane, C. J., & Phillips, L. R. (2018). Job satisfaction, work environment and successful ageing: Determinants of delaying retirement among acute care

- nurses. *Journal of Advanced Nursing*, 74(4), 900–913. <https://doi.org/10.1111/jan.13504>
- Wels, J. (2016). The Statistical Analysis of End of Working Life: Methodological and Sociological Issues Raised by the Average Effective Age of Retirement. *Social Indicators Research*, 129(1), 291–315. <https://doi.org/10.1007/s11205-015-1103-6>
- Whittemore, R., & Knafl, K. (2005). The integrative review: updated methodology. *Journal of Advanced Nursing*, 52(5), 546–553. <https://doi.org/10.1111/j.1365-2648.2005.03621.x>
- World Health Organization. (2016). *Global strategic directions for strengthening nursing and midwifery 2016-2020*. Retrieved from [https://www.who.int/hrh/nursing\\_midwifery/global-strategic-midwifery2016-2020.pdf](https://www.who.int/hrh/nursing_midwifery/global-strategic-midwifery2016-2020.pdf)

**Table 1. Summary of included research articles.**

Citation	Aims and objectives	Research methods	Sample size/population/age range	Main findings		Supplementary online file
				Push factors	Pull factors	
(1) Ang et al., 2016	To determine associations between demographic variables, motivation to work, economic factors, work demands and organisational attitudes towards older workers	<ul style="list-style-type: none"> <li>Quantitative study</li> <li>Cross-sectional survey</li> <li>Workplace-based sampling approach of 890 nurses</li> </ul>	534 nurses working in a healthcare cluster (tertiary care acute hospitals, specialised centres, community hospitals and primary care clinics) who were aged 50 and above	Respondents who were Malay were less likely than Chinese respondents to want to work until age 65 and beyond and also those who still worked shift.	Financing one's retirement, societal trends in postponing retirement and physical capability to continue working were factors significantly associated with older nurses' decisions to extend working life.	Please see Supplementary file 4 Table 1 Data_extraction_quant
(2) Armstrong-Stassen & Stassen 2013	To examine the role of target-specific satisfaction facets in the relationship between factors related to professional development and older nurses'	<ul style="list-style-type: none"> <li>Quantitative longitudinal panel study</li> <li>Random sample of 2950 registered nurses</li> <li>Two stage survey</li> </ul>	422 Hospital-employed registered nurses aged 45 to 64.	Availability of training and Job challenge was related to intention to remain through satisfaction with the job itself and satisfaction with the organization.	Development practices targeted to older nurses was linked to an intention to remain with the organization through satisfaction with professional development opportunities and satisfaction with the organization as a whole.	Please see Supplementary file 4 Table 1 Data_extraction_quant



Citation	Aims and objectives	Research methods	Sample size/population/age range	Main findings		Supplementary online file
				Push factors	Pull factors	
	intention to remain.					
(3) Armstrong-Stassen & Schlosser 2010	To explore two human resource practices: flexible work options and performance evaluation.	<ul style="list-style-type: none"> <li>Quantitative longitudinal panel study</li> <li>Random sample of 2950 registered nurses</li> <li>Two stage questionnaire</li> </ul>	528 Hospital-employed registered nurses aged 45 to 64.	None reported	Perceptions of the availability of flexible work options and performance evaluation practice were significantly related to perceived supervisor related procedural justice. Supervisors are key representatives of the hospital organisation – this relationship shapes the employee's attitude and intentions.	Please see Supplementary file 4 Table 1 Data_extraction_quant
(4) Bennett et al., 2009	To explore personal, professional and organisational factors that would affect future	<ul style="list-style-type: none"> <li>Qualitative semi structured interviews and biographical methods.</li> </ul>	37 senior F grade nurses and health care assistants aged over 45 were interviewed at two different trusts	There can be multiple expressions of commitment, which may differ at different levels of the organisation. Personal commitment (i.e., to	Expressions of commitment were not expressed in isolation; meaning commitment is negotiated, contested and sustained across and within	Please see Supplementary file 5 Table 2 Data_extraction_qual

Citation	Aims and objectives	Research methods	Sample size/population/age range	Main findings		Supplementary online file
				Push factors	Pull factors	
	participation (i.e. commitment) in the workforce of nurses.	<ul style="list-style-type: none"> <li>Voluntary recruitment</li> </ul>	<ul style="list-style-type: none"> <li>Acute setting trust</li> <li>Integrated mental health and social care trust</li> </ul>	family and children) was very important.	multiple situations.	
(5) Blakeley & Ribeiro 2008a	To explore factors that influence nurses to retire early and the incentives that might encourage them to stay longer in employment.	Mixed-methods postal validated questionnaire 200 randomly selected nurses	Nurses in clinical, academic and management positions 124 nurses aged 45 and older.	Only a quarter of respondents had done a large amount of retirement planning, of which 'keeping healthy' is one major strategy. SN and MER responses were compared but no significant differences were found.	None reported	Please see Supplementary file 6 Table 3 Data_extraction_mixed methods
(6) Blakeley & Ribeiro 2008b	To explore various factors and income sources that registered nurses believe are important in retirement planning.	<ul style="list-style-type: none"> <li>Mixed-methods postal validated questionnaire</li> <li>200 randomly selected nurses</li> </ul>	Nurses in clinical, academic and management positions. 124 nurses aged 45 and older.	71% planned to retire by age 60. Staff nurses and <b>nurse</b> managers / educators / researchers differed significantly in two reasons for leaving. SNs' decisions to retire early are more strongly influenced by the failure of the organization to offer them incentives to stay in the job longer.	Incentives that might encourage nurses to stay longer in the workforce, were related to being given acknowledgment for their good work and for their seniority. The other incentive was being able to have holidays in the summer months.	Please see Supplementary file 6 Table 3 Data_extraction_mixed methods

Citation	Aims and objectives	Research methods	Sample size/population/age range	Main findings		Supplementary online file
				Push factors	Pull factors	
(7) Boumans et al., 2008	To gain insight into older nurses' retirement intentions and to establish factors determining early retirement intentions.	Quantitative cross-sectional questionnaire 145 nurses	100 nurses aged 45 or older in one hospital	77% of nurses wanted to retire before 65 years. Individual, work-related, and organizational factors contributed to older nurses' intention to retire early due to perceived health, marital status, gender, opportunities for change and development, workload, and negative stereotyping of older employees.	None reported	Please see Supplementary file 5 Table 1 Data_extraction_quant
(8) Clendon & Walker 2016	To identify why some nurses cope well with continuing to work as they age and others struggle.	<ul style="list-style-type: none"> <li>• Qualitative study</li> <li>• A secondary analysis of existing data collected in two separate studies</li> <li>• free text survey, focus groups and interviews</li> </ul>	NZNO members aged over 50 years, which collected 3273 free text survey responses in 2012. Second round 2014 focus groups and interviews with nurses over 50 years (N=46).	The challenges were: physical challenges, fatigue, guilt, ageism, demands to complete CPD.	The enablers were: personal fitness, self-care, flexible working and strong belief in ability to contribute to profession.	Please see Supplementary file 5 Table 2 Data_extraction_qual
(9) Dordoni et al., 2019	To gain insights into the relationships	<ul style="list-style-type: none"> <li>• Quantitative study</li> <li>• Self-completed</li> </ul>	750 healthcare professionals from one	In all age groups, there was a negative relationship between	None reported	Please see Supplementary file 4

Citation	Aims and objectives	Research methods	Sample size/population/age range	Main findings		Supplementary online file
				Push factors	Pull factors	
	between healthcare professionals' age, workaholism and job satisfaction, by estimating the sequential mediating roles of workload perceptions and emotional exhaustion.	<p>survey</p> <ul style="list-style-type: none"> <li>• Stratified sampling</li> </ul>	<p>hospital in Northern Italy. 30% of the study population were over 50 years</p>	<p>workaholism and job satisfaction to be sequentially (and partially) mediated by workload perceptions and emotional exhaustion. However, the indirect effects were not as strong in the older group.</p>		<p>Table 1 Data_extraction_quant</p>
(10) Duffield et al., 2015	To identify factors for nurses to make the decision to leave the workforce.	<ul style="list-style-type: none"> <li>• Quantitative study</li> <li>• Prospective randomised questionnaire</li> <li>• Postal survey to 1100 randomly selected nurses and midwives</li> </ul>	<p>Registered nurses and midwives on the board of New South Wales, Australia age 45 and over. 459 responses received of which 352 were used for statistical analysis.</p>	<p>Key factors to leave the workforce prior to retirement or pension age were financial considerations (40.1%) i.e. having reached financial security at this point; followed by nurse health (17.4%) and retirement age of partner (13.3%).</p>	<p>None reported</p>	<p>Please see Supplementary file 4 Table 1 Data_extraction_quant</p>
(11) Eley et al. 2010	To compare and contrast the reasons that nurses provide for entering and	<ul style="list-style-type: none"> <li>• Quantitative study</li> <li>• Cross sectional cohort design</li> <li>• Online</li> </ul>	<ul style="list-style-type: none"> <li>• Nurses (n= 272)</li> <li>• Regional public health service district</li> <li>• 50 years of age or older</li> </ul>	<p>Disillusionment with nursing was cited as the main reason for leaving.</p>	<p>Economic pressures retain nurses in work.</p>	<p>Please see Supplementary file 4 Table 1 Data_extraction_quant</p>

Citation	Aims and objectives	Research methods	Sample size/population/age range	Main findings		Supplementary online file
				Push factors	Pull factors	
	leaving nursing	questionnaire				
(12) Falk et al., 2017	To investigate factors that relate to Nurse Practitioners' (NP) intent to retire.	<ul style="list-style-type: none"> <li>Quantitative study</li> <li>Secondary data analysis of a national survey of nurse practitioners</li> </ul>	3171 working nursing practitioners, 55 years of age and older. National sample	Around 59% of NPs over 60 and 15% of nurses over 55 intend to retire in the next 5 years. Intent to retire was greater when: working part-time, not having a masters' degree, being dissatisfied and when working in primary care.	None reported	Please see Supplementary file 4 Table 1 Data_extraction_quant
(13) Flackler, 2019	To explore older, experienced hospital clinical nurses' perceptions of new roles in hospital clinical practice as they age	<ul style="list-style-type: none"> <li>Qualitative study</li> <li>Focus groups</li> <li>Purposive sampling</li> </ul>	20 hospital nurses aged 50 and older participated in one of five focus groups. Recruited from one trauma centre and three community hospitals.	Concerns about performance during a full 12-hour shift. Work environment not adjusted to their physical strength (person above 50).	Noting barriers to continuing hospital practice as they age, participants described important roles in teaching patients and families, acting as patient advocates, and mentoring the next generation of nurses	Please see Supplementary file 5 Table 2 Data_extraction_qual
(14) Friedrich et al. 2011	To discover incentives for seasoned nurses to continue in acute care and best practice for retention.	Qualitative study Semi-structured interviews	13 registered nurses (over 62 years old) and semi-structured interviews with 12 nurses (age 55-62) in active practice working as acute care	None reported	4 themes emerged: <ul style="list-style-type: none"> <li>Attitudes and experiences – pre-existing factors that influence retirement decisions</li> <li>Retention factors: retention</li> </ul>	Please see Supplementary file 5 Table 2 Data_extraction_qual

Citation	Aims and objectives	Research methods	Sample size/population/age range	Main findings		Supplementary online file
				Push factors	Pull factors	
			nurses in a 500 bed medical centre.		strategies <ul style="list-style-type: none"> <li>• Important needs: (exercising mind and body; finances; camaraderie)</li> <li>• Unique contributions: (sharing expertise, making a difference)</li> </ul>	
(15) Friis 2007	To analyze the relationship between health, lifestyle, work-related and sociodemographic factors, and older nurses' exit from the labor market to Post-Employment Wage (PEW), an early retirement scheme.	<ul style="list-style-type: none"> <li>• Quantitative study</li> <li>• Questionnaire</li> <li>• longitudinal data from the Danish Integrated Database for Labor Market Research</li> </ul>	19,898 nurses above the age of 44 returned the questionnaire 5,538 nurses aged 51–59 from the longitudinal data	Nurses who had poor self-rated health were more likely to join PEW. Nurses on relatively low gross incomes were more likely to enter PEW compared with nurses with relatively high gross incomes (HR 1.60, CI 1.43–1.79). Having a retired or unemployed spouse increased the probability of joining PEW.	None reported	Please see Supplementary file 4 Table 1 Data_extraction_quant
(16) Graham et al. 2014	To identify reasons why older registered nurses remain in the workforce	<ul style="list-style-type: none"> <li>• Quantitative study</li> <li>• Prospective randomised questionnaire</li> </ul>	Registered nurses and midwives on the board of New South Wales, Australia age 45 and	None reported	The need for income was identified as the most important reason for staying in nursing (61.9%), interesting work (12.2%)	Please see Supplementary file 4 Table 1 Data_extraction_quant

Citation	Aims and objectives	Research methods	Sample size/population/age range	Main findings		Supplementary online file
				Push factors	Pull factors	
		<ul style="list-style-type: none"> <li>Postal survey to 1100 randomly selected nurses (same instrument as in Duffield et al. 2015)</li> </ul>	over. 459 responses received of which 352 were used for statistical analysis. The respondents were grouped into two age subgroups (45-55 years and 56 years and older)		and good working relationships (3.9%). Reasons to encourage staying beyond the retirement age: flexible working conditions (42.9%) and continuing social interaction (41.2%), no financial disadvantage (31.5%), no loss of retirement benefits (27.8%), a change in the type of work done (24.4%).	
(17) Klug, 2009	To investigate the concerns of Boomer nurses to understand how workforce strategies can effectively retain older nurses	<ul style="list-style-type: none"> <li>Mixed-methods study</li> <li>Online survey</li> <li>Semi-structured interviews</li> <li>Convenience sample of 943 nurses</li> <li>Voluntary recruitment</li> </ul>	10 Nurses (for the interviews) and 374 nurses (for the survey) aged 44 years and older from one Children's hospital in Minnesota	Older nurses, as they near retirement, are primarily concerned about maintaining health insurance and financial benefits at this stage in their professional and personal lives.	Allowing older nurses to choose three options that are the most important to them provides Children's hospitals with an opportunity to improve its retention efforts in a reasonable manner, while acknowledging the concerns of the older nurse.	Please see Supplementary file 6 Table 3 Data_extraction_mixed methods
(18) Liebermann	To identify job-related resources	<ul style="list-style-type: none"> <li>Quantitative study</li> <li>Longitudinal design</li> </ul>	A total of 438 nurses responded (participation	None reported	The expectation of remaining in the same job until retirement age	Please see Supplementary file 4

Citation	Aims and objectives	Research methods	Sample size/population/age range	Main findings		Supplementary online file
				Push factors	Pull factors	
et al., 2015	which strengthen nurses' expectation of remaining in the same job until retirement age	<ul style="list-style-type: none"> <li>• Questionnaire sent to 953 nurses at a University hospital in Southern Germany.</li> </ul>	rate 46%). After the exclusion of participants with missing data, 387 nurses remained (41%). The response rate of the follow- up study on was n = 345 (89%), participants were aged 21–63 years		is positively related to work-time control, role clarity and colleague support. Supervisor support exerts an indirect effect via job resources.	Table 1 Data_extraction_quant
(19) Liu et al., 2018	To describe the retirement planning practices of Mainland Chinese older nurses and to examine related personal and work factors.	<ul style="list-style-type: none"> <li>• Quantitative study</li> <li>• Cross sectional survey questionnaire</li> <li>• Convenience sample</li> <li>• 190 questionnaires distributed</li> </ul>	170 nursing staff members aged 50 years or older who were engaged in hospital clinical nursing and not yet retired, working at four large general hospitals in Changchun, Jilin Province, a provincial capital City.	The majority of the older nurses, regardless of age, degree level, job title and designation, underwent insufficient retirement planning (n = 122, 80.3%).	Correlation analysis revealed that leadership and autonomy, cultural sensitivity and control of practice in the job environment were related to the older nurses' retirement planning behavior. A good job environment can strengthen nurse's willingness to remain in the job after retirement.	Please see Supplementary file 4 Table 1 Data_extraction_quant
(20) Palumbo et al., 2009	To explore rural RNs' perceptions of intent to stay in their current position, with	<ul style="list-style-type: none"> <li>• Quantitative study</li> <li>• Postal questionnaire</li> </ul>	583 RNs (53% response rate), in 12 Institutions (four hospitals, seven home health agencies,	None reported	The majority (58%) of nurses either plans to or may work as a nurse after retirement. The top three HR practices reported by	Please see Supplementary file 4 Table 1 Data_extraction_quant



Citation	Aims and objectives	Research methods	Sample size/population/age range	Main findings		Supplementary online file
				Push factors	Pull factors	
	their organization, and employment as a nurse and organizational practices as well as unit-level culture regarding older nurses in the workplace	<ul style="list-style-type: none"> <li>Convenience sample of 1110 nurses</li> </ul>	and one nursing home). 51% 40-54, 33% 55+		respondents as important to their decision to remain in their organizations were (a) recognition and respect, (b) having a voice, and (c) receiving ongoing feedback.	
(21) Sulander et al., 2016	To explore the predictors of leaving before the typical retirement age and examine whether organizational justice moderated the association between job involvement and retirement intentions.	<ul style="list-style-type: none"> <li>Quantitative study</li> <li>Postal survey sent to 2348 employees</li> </ul>	Sample population taken from 134 assisted living facilities providing 24h care. Of the respondents a sample of 446 nurses (age 50-69) was achieved.	About two thirds of the sample reported moderate or strong retirement intentions. Nurses who experience low levels of distributive justice, interactional justice and procedural justice were more likely to have retirement intentions.	None reported	Please see Supplementary file 4 Table 1 Data_extraction_quant
(22) Topa et al., 2018	To analyse the antecedents of the behaviours to prepare for	<ul style="list-style-type: none"> <li>Quantitative study</li> <li>A two- wave matched-pair</li> </ul>	Sample taken from five public hospitals, all nurses over 55 years and who are still working for	Financial knowledge and retirement planning involvement were significantly related to retirement goals clarity. Greater	None reported	Please see Supplementary file 4 Table 1 Data_extraction_quant

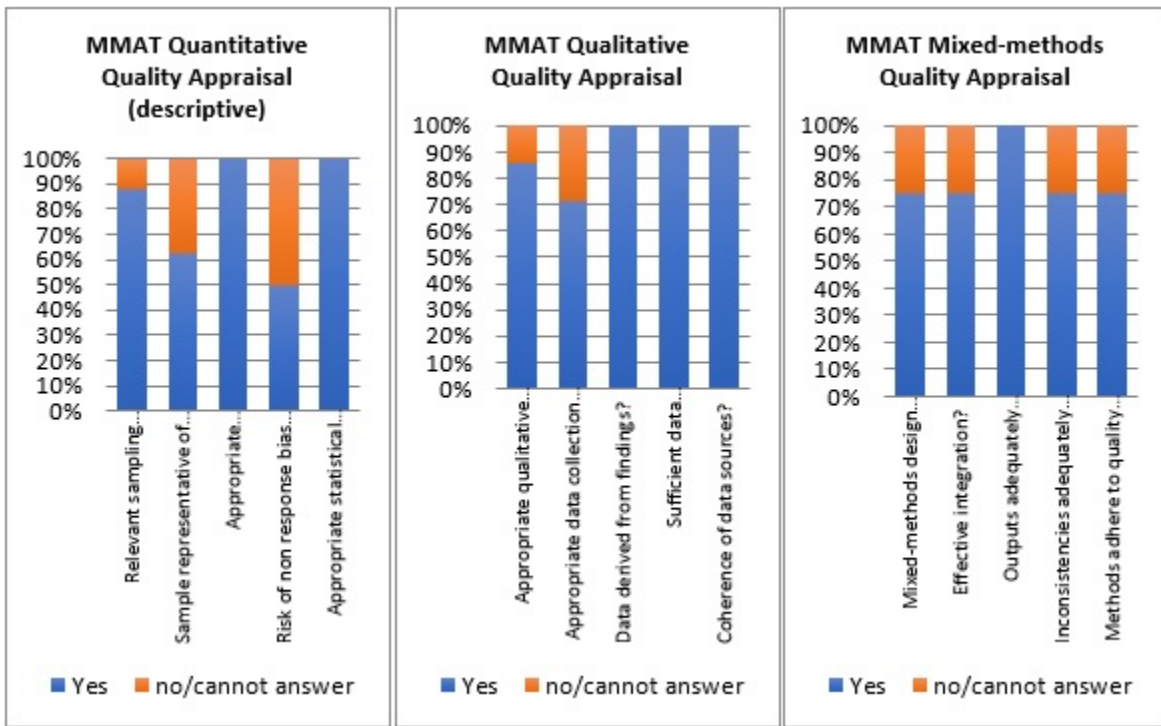
Citation	Aims and objectives	Research methods	Sample size/population/age range	Main findings		Supplementary online file
				Push factors	Pull factors	
	retirement in nurses older than 55 years and to identify gender differences.	longitudinal study <ul style="list-style-type: none"> <li>• Convenience sampling of 301 nurses</li> </ul>	the next 6 months. 132 participants answered the survey at both waves.	financial knowledge is in support of self-insurance and less of public protection. Women are less strong in applying their financial knowledge to planning behaviours.		
(23) Valencia & Raingruber, 2010	To identify what motivates experienced nurses to continue working and to consider retirement	<ul style="list-style-type: none"> <li>• Qualitative study</li> <li>• Heideggerian phenomenological interviews</li> <li>• Purposeful sampling</li> </ul>	16 Nurses split into two groups: 31 to 49 years old (younger nurses) and 50 to 65 years old (older nurses). The study was conducted in the Medical Intensive Care Unit (MICU) of a university medical center.	Experiences that provoked thoughts of retirement in the older group were changes related to new technology. Older nurses did not want to work to the extent that their health was influenced.	Both groups expressed concern about changing benefits and financial security kept them working. The older nurse group valued working as a way to connect with patients and families.	Please see Supplementary file 5 Table 2 Data_extraction_qual
(24) Voit & Carson 2012	To explore the perceived opportunities for and barriers to implementing flexible strategies to engage older nurses in the workforce after they	<ul style="list-style-type: none"> <li>• Qualitative study</li> <li>• Semi-structured interviews</li> <li>• Targeted recruitment of 15 nurses</li> </ul>	Sample of 6 nurses and 9 nurse managers over 50 years old from community, hospital and remote health in the Northern Territory.	None reported	The remoteness of the Northern Territory context implies specific barriers to the engagement of older nurses compared to other areas. All nurses and nurse managers interviewed were interested in continuing to work post-retirement.	Please see Supplementary file 5 Table 2 Data_extraction_qual

Citation	Aims and objectives	Research methods	Sample size/population/age range	Main findings		Supplementary online file
				Push factors	Pull factors	
	resigned from full time work.					
(25) Voit & Carson 2014	To enhance the understanding of the retirement plans and post retirement employment intentions of nurses and midwives living and working NT.	<ul style="list-style-type: none"> <li>• Mixed-methods study</li> <li>• Online survey</li> <li>• Voluntary recruitment</li> </ul>	Convenience sampling of nurses (N=207) who work for the NT Department of Health, response rate of 12%. 84% of which were over the age of 45.	None reported	A large number of respondents (73.2%) are interested in post-retirement work. Most preferred types of engagement include the gradual reduction of work hours in current work places, part year or seasonal employment, short term placements, job sharing or job rotation, mentoring, research and policy development or acting as Northern Territory representatives promoting jobs.	Please see Supplementary file 6 Table 3 Data_extraction_mixed methods
(26) Warburton et al. 2014	To identify potential strategies to improve the effort-rewards balance, thus the retention of older rural nurses and allied healthcare workers.	<ul style="list-style-type: none"> <li>• Qualitative study</li> <li>• Semi-structured phone interviews</li> <li>• Purposeful stratified sample was drawn from 299 rural healthcare workers</li> </ul>	17 rural healthcare workers (nurses and allied health) aged 55 years or more, employed in the North Victorian Public sector.	Findings were that there is an imbalance between high effort and low rewards in all participants' discussions implying nursing work is high effort and low reward. Data were categorized into extrinsic and intrinsic factors. The latter included intention to retire, family	The main extrinsic factors included feeling valued by the organisation, workload pressures, feeling valued by clients, collegial support, work flexibility, and a lack of options.	Please see Supplementary file 5 Table 2 Data_extraction_qual

Citation	Aims and objectives	Research methods	Sample size/population/age range	Main findings		Supplementary online file
				Push factors	Pull factors	
				influences, work enjoyment, financial influences, health, sense of self, and social input.		
(27) Wargo-Sugleris et al. 2017	To determine the relationships between job satisfaction, work environment and successful ageing and how these factors relate to Registered Nurses' intent to retire.	<ul style="list-style-type: none"> <li>Quantitative study</li> <li>Correlational, descriptive, cross-sectional</li> <li>online survey</li> <li>Convenience sampling of 7117 nurses</li> </ul>	2,789 Registered Nurses aged 40 years or older working in acute care in Florida.	Lowest job satisfaction was with advancement opportunities. Work environment explained 55% of the variance in job satisfaction.	Highest job satisfaction was with scheduling issues and co-workers. Successful ageing scores were also high with 81% reporting excellent or good health. Years to retirement were significantly associated with successful ageing, age and income.	Please see Supplementary file 4 Table 1 Data_extraction_quant

**Table 2: Geographical Location of Studies Selected.**

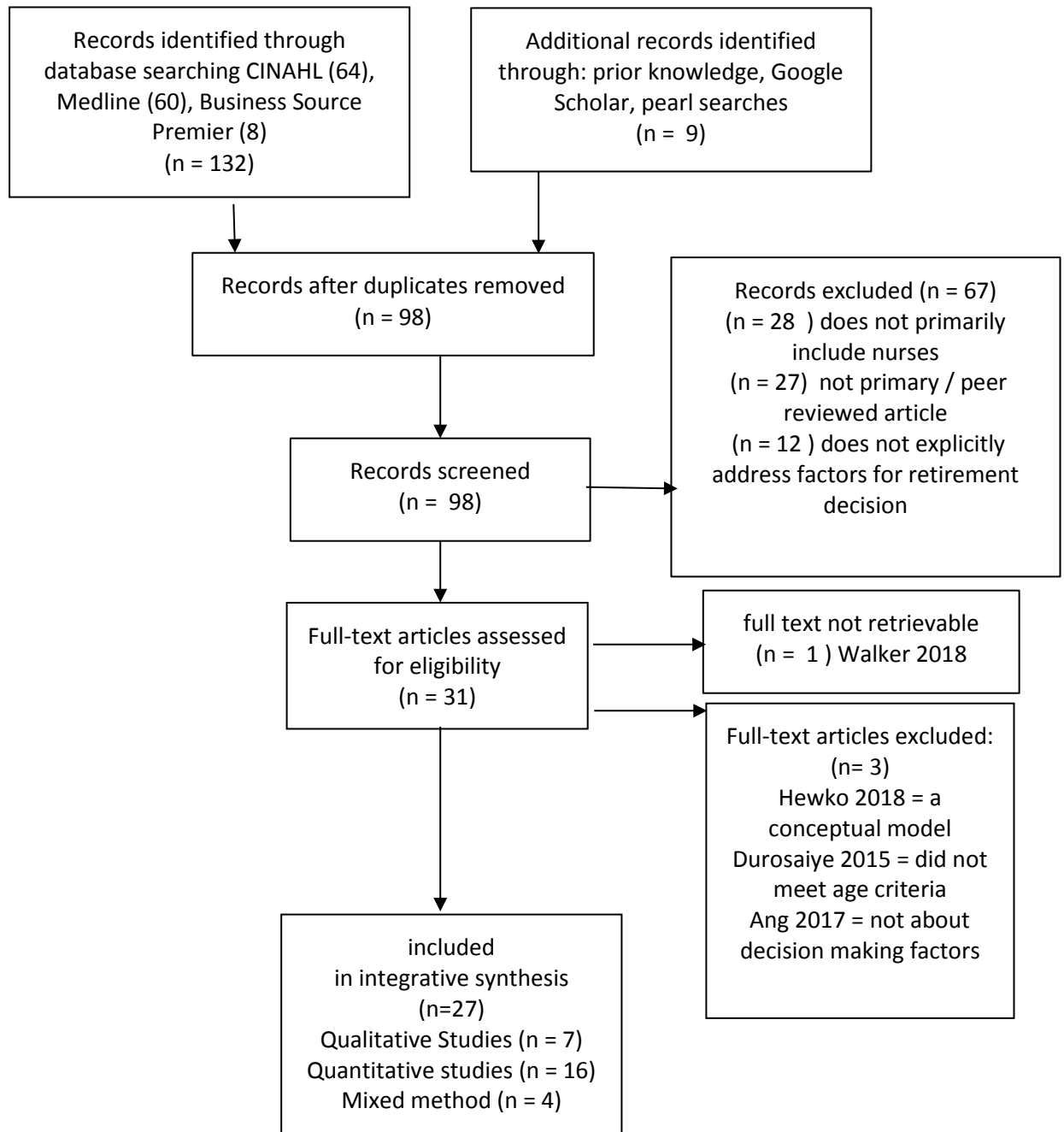
Location of research conducted	Number of papers
Australia	6
Belgium	1
Canada	5
China	1
Denmark	1
Finland	1
Germany	1
Italy	1
New Zealand	1
Singapore	1
Spain	1
UK	1
USA	6

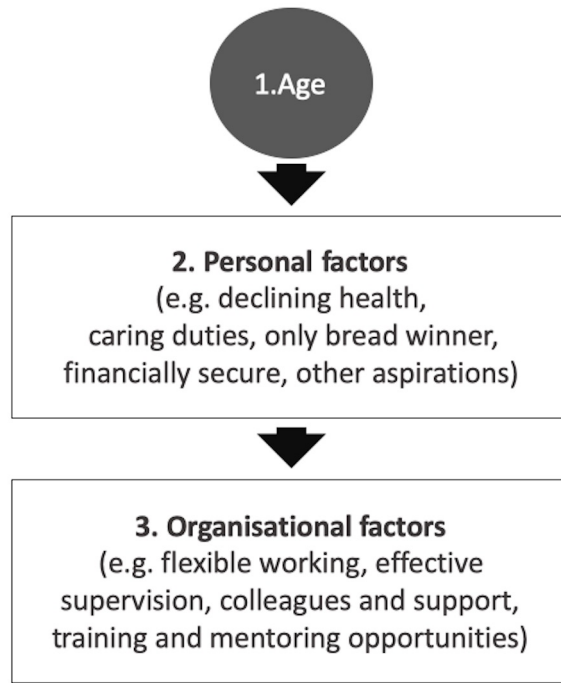


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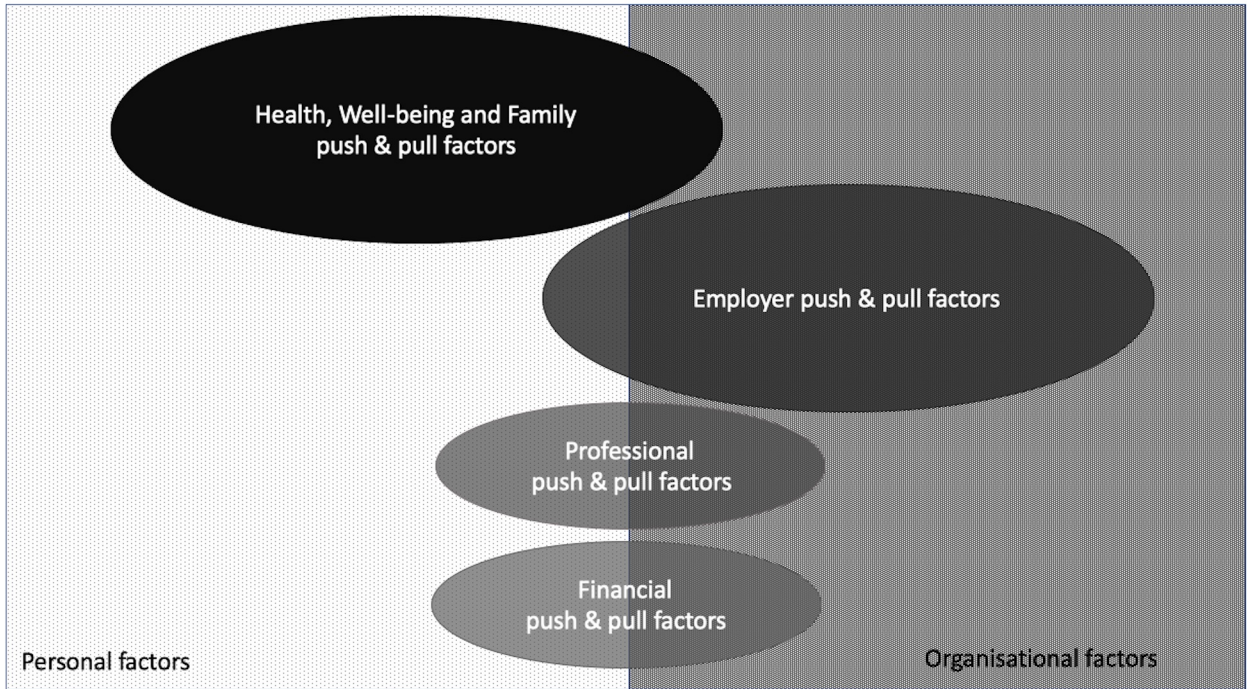
**Figure 2. PRISMA 2009 Flow Diagram**





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