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Job satisfaction, work environment and successful ageing: Determinants of delaying retirement among acute care nurses

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Abstract

Aim: To determine the relationships between job satisfaction, work environment and successful ageing and how these factors relate to Registered Nurses' intent to retire.

Background: Although little studied, retention of older nurses by delaying early retirement, before age 65, is an important topic for research. Qualitative and quantitative studies have indicated that job satisfaction work environment and successful ageing are key motivators in acute care Registered Nurses retention and/or delaying retirement. This study was designed to provide information to administrators and policy makers about retaining older, experienced RNs longer and more productively.

Design: This was a correlational, descriptive, cross-sectional study.

Methods: An online survey of acute care Registered Nurses (N = 2,789) aged 40 years or older working in Florida was conducted from September - October 2013. Participants completed items related to job satisfaction, work environment, successful ageing and individual characteristics. Hypotheses derived from the modified Ellenbecker's Job Retention Model were tested using regression analysis.

Results: Job satisfaction scores were high. Highest satisfaction was with scheduling issues and co-workers; lowest with advancement opportunities. Successful ageing scores were also high with 81% reporting excellent or good health. Work environment explained 55% of the variance in job satisfaction. Years to retirement were significantly associated with successful ageing (p < .001), age (p < .001) and income (p < .010).

Conclusions: This study provides quantitative evidence that environment and successful ageing are important areas that have an impact on job satisfaction and delay of retirement in older nurses and further studies in these areas are warranted to expand on this knowledge.

KEYWORDS
acute care, delayed retirement, job satisfaction, nurses, nursing, older, successful ageing, work environment

1 | INTRODUCTION

Research shows three important trends about older workers and delayed retirement. The first trend is the unprecedented growth of the ageing workforce in the USA and internationally. Worldwide the percentage of age 55 and over workers increased from 25% in 1990 to greater than 30% in 2010 and is expected to peak in 2060 at 40% (Eurostat, 2012). In 2011 the proportion of the European

Workforce over age 55 was 47% (Eurostat, 2012) and this is expected to continue to rise over the next 50 years (Eurostat, 2012). The USA census predicts that by 2050 *c.* 19% or 19.6 million American workers will be 65 years old or older. In 2015 for the first time since 1948, American workers older than 65 outnumbered teenage workers. Counting the 1.3 million over 55 seeking employment, were 33 million USA workers 55+ years (BLS, 2012). The second trend in developed nations is the reduction of new workforce entrants (Calo, 2005; Toosi, 2012) due to the decreased birth rates occurring after the "Boomer" generation (Bureau of Labor Statistics, 2012; Hatcher et al., 2006). The Bureau of Labor Statistics (2012) predicts that workers older than 65 will increase by 75% compared with only a 2% growth prediction in workers 25 to 54 years old in the next 10 years (Heidkamp, Mabe, & DeGraaf, 2012). The third trend, in the USA, is the concern of governments and businesses about sustaining entitlements such as social security and retirement benefits for current and future retirees, especially those retiring before age 65 given the increasing life expectancy. Some believe these trends indicate a problem that is a harbinger of future economic crises.

In the USA, mean age of retirement is 65 (Horner, 2014, Wallace, 2017). The need for delaying retirement of bedside Registered Nurses (RNs) in acute care settings is becoming increasingly apparent. In the USA, significant shortages in the RN workforce have been predicted by the year 2030, which could mean a deficit nationally of 918,232 RNs (Juraschek, Zhang, Ranganathan, & Lin, 2012). This is occurring at the same time that ageing Baby Boomers are placing increasing demands on healthcare systems and adding to patient censuses with multisystem medical needs. The average age of nurses in the USA is 46 years old and 23% of nurses over 55 years old anticipate work changes including retirement or changing jobs (AMN Healthcare, 2013).

Retirement of nurses, early or otherwise, affects the economics of health care and quality of care costs. In fact, nurse turnover is one of most expensive and disruptive problems facing healthcare systems (Jones, 2008; Lum, Kervin, Clark, Reid, & Sirola, 1998; NSI, 2016; Spetz, 2008). A literature review of nursing turnover costs reported a range from $10,098 to $88,000 from 1990 - 2010 (Li & Jones, 2013), costing from *c.* $5.9–6.4 million annually at an acute care facility. The largest costs include vacancy costs, new RN training and orientation costs, productivity of newly hired RNs and advertising and recruitment costs (Jones, 2008). Turnover is also strongly linked to care quality in terms of patient mortality, nosocomial infections and work injuries (Litvak & Bisognano, 2011; Oulton, 2006). Mass exodus of experienced, well-educated nurses due to retirement will not only cause a "brain drain" in the profession but also jeopardizing patient safety by increasing the patient load for remaining RNs. With 56.4% of nurses over the age of 65 working as staff RNs (AACN, 2011), Jones (2008) asserted that delaying retirement in RNs by 4 years could increase full-time equivalents by 158,000 (9%) by 2020.

Until recently most of the research on retirement was focused on retirement of males in the workforce, recent studies point to differences in retirement decisions and policies between men and women facing retirement planning (Wels, 2016). Family and individual characteristics, partner retirement decisions and gender are influencing predictors of retirement (Loretto & Vickerstaff, 2012; Moen, Kojola, Kelly, & Karakaya, 2016). In female-dominated nursing, gender often structures retirement decisions with women moving in and out of nursing, often in adaptation/accommodating husband's careers or changing family obligations (Moen et al., 2016; Pavalko, Gong, & Long, 2007).

Why is this research/review needed?

- Worldwide trends indicate an increase in older workers in the workplace, the eclipsing of younger workers by older workers and the need to sustain entitlements such as social security and retirement benefits for retirees.
- Registered Nurse shortages continue to be predicted as the RN population ages with the average age of nurses in the USA 46 years and 23% over age 55 years.
- The retirement of RNs will have an impact on the economics of health care and quality of care costs, estimated at $6.4 million per year at an acute care facility.

What are the key findings?

- Published research shows job satisfaction as the number one reason RNs remain on the job; however for the RNs aged 40+ in the current quantitative study, this was not the reported findings.
- Successful ageing was found to be to predictive of years to retirement with several contributing factors suggesting that creating more physically supportive work environments may delay retirement for older RNs.
- When reporting the findings of this work, environment was found to the overall best predictor of nurses contemplating retirement decisions.

How should the findings be used to influence policy/practice/research/education?

- The need to retain older RNs has never been more important as we face impending loss of large numbers of RNs needed for their experience.
- While the three factors, job satisfaction, work environment and successful ageing, have each been studied extensively, little research has focused on older RNs specifically.
- Research into the factors that affect earlier retirement in RNs will lead to a greater understanding of the interplay between organizational need, human resource policy and procedures and nurses' job decisions.

Despite these studies and concerns, in truth very little research has focused on older nurses, nurses older than 50 or on delaying their retirements past the average retirement age-65 (Horner, 2014). As a consequence, many questions remain about what factors motivate older nurses to remain working and what strategies might be used to promote delayed retirement. To that end, this current research was designed to identify the factors associated with retirement among older RNs working in acute care. The goal was to provide evidence to inform administrators and policy makers as to the best ways to create incentives to promote delayed retirement and retain older nurses at the bedside.

1.1 | Background

The design for this study was guided by an adaptation of Ellenbecker's (2004) Job Retention Model (JRM) which proposes a direct relationship between job satisfaction and retention. When adapting the JRM for this study the intrinsic/extrinsic factors were viewed as similar for retention of home healthcare nurses and acute care nurses. Years to retirement, intent to stay/retention are both forms of leaving a particular employ, allowing for the modifications. Additional modifications to the original JRM for this study were the addition of the individual characteristics—education and primary financial provider.

In literature and existing measurement instruments, job satisfaction is conceptualized as being multidimensional and influenced by both intrinsic and extrinsic factors (Camarino et al., 2008; Ellenbecker, 2004; Iliopoulos & While, 2010; Liu et al., 2012). Hence, job satisfaction is a mediator in the model between the intrinsic factors of successful ageing-workability and intrinsic aspect of work environment such as professional autonomy, group cohesion with peers and physicians and organizational characteristics and the extrinsic factors of work environment including stress and workload, control over work hours and work activities, salary and benefits and positive perceptions of organizational opportunities. In addition, certain individual characteristics such as age, gender and tenure are directly related to retention. Older workers have especially diverse ideologies on work and success, possibly the result of generational influences, changes in health and shifting goals. As older workers pursue different goals than younger workers, intrinsic and extrinsic factors become more important when evaluating professional success (Korman, Wittig-Berman, & Lang, 1981; Schulz & Heckhausen, 1996). Modifications of Ellenbecker's JRM were made to increase its relevance to the needs and concerns of older nurses working in acute care settings as they contemplate years to retirement (Figure 1).

Although very little research is available on the factors that would influence older nurses' decisions to delay retirement, studies of retention of older nurses do shed light on the subject. Common factors identified as influencing older nurses' decisions to leave the job were technological advances, perceived poor health, marital status, workload and stress (Andrews, Manthorpe, & Watson, 2005; Boumans, de Jong, & Vanderlinden, 2008; Cyr, 2005). Factors facilitating decisions to stay on the job were flexible schedules, financial independence, workload and part-time work (Andrews et al., 2005; Cyr, 2005; Letvak & Buck, 2008) explored reasons to remain on the job for nurses over 50 years old. Letvak's (2002) study reported increased educational opportunities, recognition and benefit packages tailored towards older nurses as important for retention. Letvak reported in 2003 that older nurse's commitment to the job, ability to carry their own load on the job and relationships in the organization were important to retention of older nurses. Studies of delaying retirement report improved work environments, reduced stress, income and perceived health may also delay retirement of older RNs (Camarino et al., 2008; Letvak, 2003; Letvak & Buck, 2008; Walker & Clendon, 2013). These studies provide some, but not all answers to questions about incentivizing older nurses to delay retirement.

Job satisfaction, defined as how people feel about their jobs or simply the extent to which they like or dislike their jobs (Spector, 2006), has been cited as the number one predictor of intent to stay among nurses (Duffield, Roche, Blay, & Stasa, 2010; Fitzgerald, 2007; Laschinger, Leiter, Day, & Gilin, 2009). Mixed findings have been reported about job satisfaction among older nurses. Some studies report higher degrees of job satisfaction among older nurses (Blythe et al., 2008; Irvine & Evans, 1995; Wieck, Dols, & Landrum, 2010), while other studies have shown no difference in job satisfaction between younger and older nurses (Cummings et al., 2008; Delobelle et al., 2010; Sparks, 2012). Factors relating to job satisfaction specific to older nurses include respect, recognition (Abi Al Rub, Omari, & Al-Zaru, 2009; Armstrong-Stassen, 2005; Burtson & Stichler, 2010; Spiva, Hart, & McVay, 2011), empowerment, autonomy (Iliopoulos & While, 2010; Laschinger et al., 2009; Ning, Zhong, Libo, & Quijie, 2009) and managerial characteristics (Delobelle et al., 2010; Duffield et al., 2010; Hayes, Bonner, & Pryor, 2010). Whether job satisfaction provides an incentive for older nurses to delay retirement is unknown.

Work environment is "the totality of all factors that influence satisfaction and performance" (Kramer & Schmalenberg, 2012; p. 59) and encompasses intrinsic and extrinsic factors that make a work setting. A healthy environment has been positively linked both to job satisfaction and retention among acute care nurses (Aiken & Patrician, 2000; Cho, Ketefian, Barkauskas, & Smith, 2003; Cohen, Stuenkel, & Nguyen, 2009). Work environment is influenced by staff relationships (Letvak & Buck, 2008), nurse to patient ratio (Aiken, Clarke, Sloane, Lake, & Cheney, 2008), unit geography (Christmas, 2008), job stress and job injury, (Letvak, 2003; Letvak & Buck, 2008). The relationship of intrinsic and extrinsic factors of the work environment and *delayed* retirement is unknown.

Successful ageing is the ability of continued growth and the need to learn from past experiences, coping with present circumstances and setting goals for the future with an emphasis on adaptability (Fisher, 1995). Ability and adaptability has been studied extensively, examining perceptions of workers about education, coping ability, environmental issues, commitment to employer, peer relationship and managerial support (Ilmarinen, 1999; Tuomi et al., 1997). Factors relating to successful ageing include social life, family relationships,

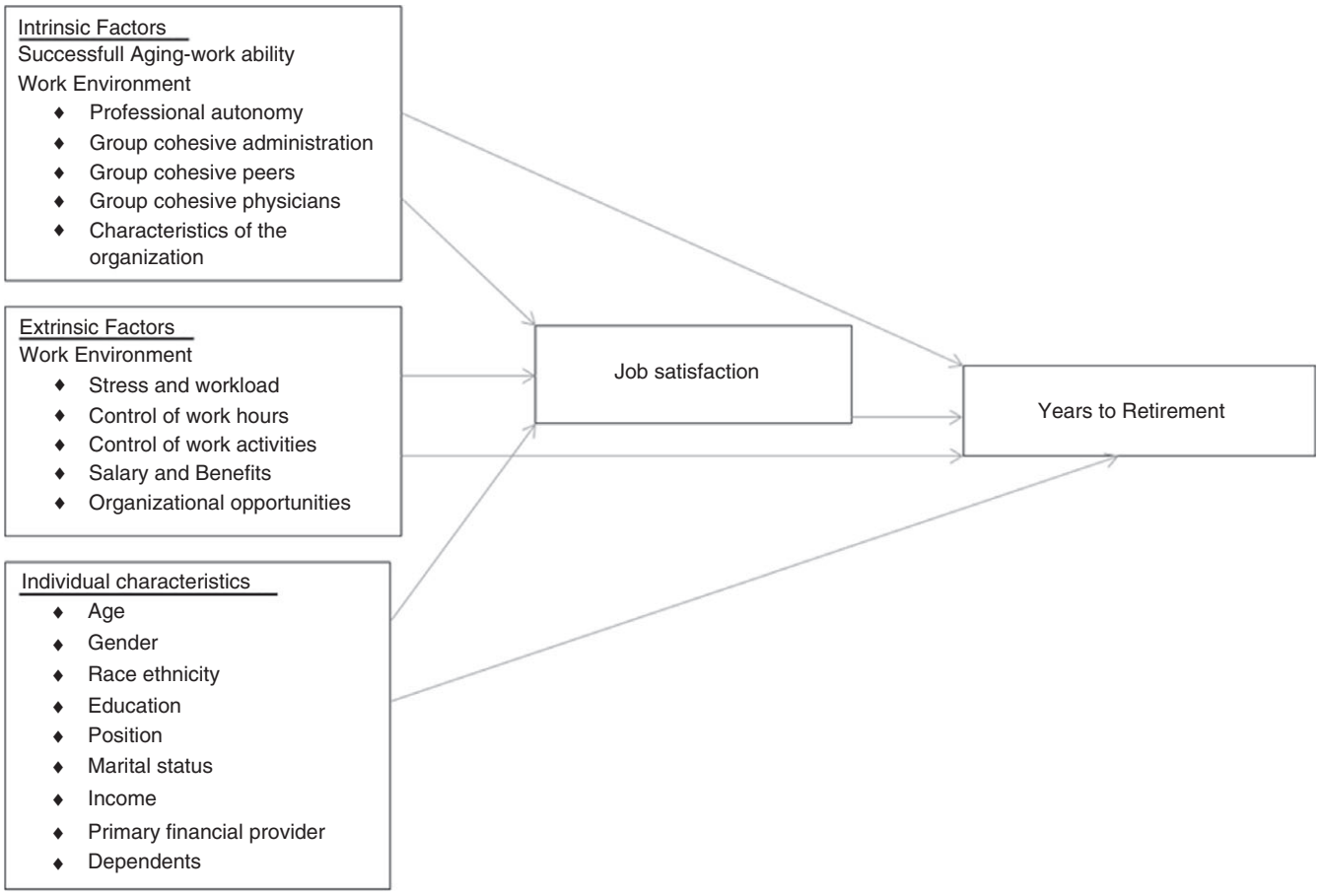

FIGURE 1 Modified Ellenbecker retention model

economic security (Chou, 2012; Robson, Hansson, Abalos, & Booth, 2006), job control (Müller, Weigl, Heiden, Glaser, & Angerer, 2012), focus and achievement of goals and occupational growth (Robson et al., 2006) and personal growth (Sanders & McCready, 2010). Successful ageing and its relationship to delayed retirement has been studied in the general work force (Ilmarinen, 2006), but not in nursing. However, continued work for pay has been shown to be important to older workers (Kautonen, Down, & Minniti, 2013).

2 | THE STUDY

2.1 | Aims

Based on the modified JRM, the aims of this study were to: (1) examine the influence of the personal characteristics of age, gender, financial responsibilities and family obligations on job satisfaction and years to anticipated retirement; and (2) determine the relationship between plans for retirement and work environment, successful ageing and job satisfaction.

2.1.1 | Research question

Are age, gender, financial responsibilities and family obligations associated with job satisfaction and years to anticipated retirement; and is there a relationship between work environment, successful ageing and anticipated retirement in older acute care RNs?

The following hypotheses were tested among acute care nurses over age 40 years of age:

Hypothesis 1 Controlling for individual characteristics, successful ageing and work environment are associated with job satisfaction.

Hypothesis 2 Controlling for individual characteristics, job satisfaction, work environment and successful ageing are associated with intent to delay retirement of older nurses.

2.2 | Design

A correlational, descriptive cross-sectional study design was used.

2.3 | Participants

A one-time survey was administered online to RNs in Florida. This was a convenience sample based on collaboration with the Florida Board of Registered Nurses who agreed to provide email addresses to contact potential participants.

Inclusion criteria specified RNs who were working in acute care, 40 years of age or older, English speaking and willing to participate. Exclusion criteria specified nurses younger than 40 and provided email addresses for *c.* 180,000 RNs. Initially, 7117 RNs agreed to participate (0.04% response rate); however, 4,328 respondents were

either too young and/or did not work in acute care yielding an actual sample size for the study of N = 2,789.

2.4 | Data collection

Data were collected September–October 2013. An invitation to participate was sent via email with a link to an introductory letter and the survey instruments on Survey Monkey (www.surveymonkey.com). Consent was implied after respondents read the introductory letter and clicked yes to complete the survey. Two screening questions were used "Are you currently employed as an acute care nurse in a hospital or other acute care facility?" and "please select current age group." If a respondent did not answer yes to the first question and >40 to the second question, the survey automatically stopped, and they were thanked for their time.

Survey items included demographic questions and the research instruments measuring the constructs of job satisfaction, work environment and successful ageing. One item was used to assess timing of intended retirement: "If you are currently planning retirement, in how many years do you plan to retire?" As compensation for research participation, two iPads and 500 Starbucks $5.00 e-cards were awarded to randomly selected participants. Survey Monkey personnel administered the survey and distributed research compensation to participants.

2.5 | Instruments

Variables of interest were operationalized using three valid and reliable research instruments: (1) the Mueller McCloskey Satisfaction Scale (MMSS); (2) the Practice Environment Scale of the Nursing Work Index (PES-NWI) (Lake, 2002); and (3) the Work Ability Index (WIA) (Aiken & Patrician, 2000; Mueller & McCloskey, 1990; Tuomi, Ilmarinen, Jahkola, Katajarinne, & Tulkki, 1998). The final questionnaire combined questions from the MMSS and the PES-NWI and the complete WIA. The questions were reduced to decrease subject fatigue and overlap of subject topics. Modified version predicted a finish time of 30–60 min. Questions/subscales were deleted on the bases of duplicity or redundancies and the final tool was not pilot tested.

Six subscales of the MMSS operationalized job satisfaction: (1) satisfaction with extrinsic rewards (three items); (2) satisfaction with scheduling (five items); (3) satisfaction with family and work (one item); (4) satisfaction with co-workers (two items); (5) satisfaction with praise and recognition (three items); and (6) satisfaction with control (five items) (Mueller & McCloskey, 1990). The MMSS was originally developed using theoretical work of Maslow and is a nurse-specific scale. A 5-point Likert scale is used ranging from 1 'very dissatisfied' to 5 'very satisfied'. Cronbach's alpha for the global scale was reported at 0.89 (Mueller & McCloskey, 1990). For subscales used in this study, $\alpha = 0.91$.

Five subscales of the PES-NWI operationalized work environment (Lake, 2002): nurse participation (nine items), nursing foundations (one item), leadership and support (four items), staffing and resources (one item) and nurse–physician relations (three items). It uses a 4-point Likert scale ranging from 1 'strongly agree' to 4 'strongly disagree'. The PES-NW is also a nurse-specific scale. Cronbach's alpha for the global score was reported at .80 (Lake, 2002). For subscales used in this study $\alpha = 0.94$.

Successful ageing was operationalized with the complete WAI. The WAI is used in clinical occupational health and research to assess work ability during work surveys and/or health examinations and is completed by the employee. This study focused on actively working acute care RNS. Therefore, physical and mental demands of the job and workers overall health status and resources were important to examine. The WAI is widely used in epidemiological studies and has been translated into 25 languages (Ilmarinen & Tuomi, 2004). The WAI contains seven items: (1) comparison of current work ability-optimal (0–10 points); (2) work ability related to job demands (2–10 points); (3) number of current medically diagnosed diseases (1–7 points); (4) estimated work impairment relating to diseases (1–6 points); (5) sick leave over the past year (1–5 points); (6) effect of impairment in 2 years (1–6 points); and (7) mental resources (0–4 points). Ratings are categorized as: poor (7–27 points), moderate (28–36 points), good (37–43 points) and excellent (44–49 points).

2.6 | Ethical considerations

Institutional Review Board approval was obtained from the relevant committee prior to commencement of data collection. Only de-identified research data were shared with the researchers.

2.7 | Statistical analysis

Univariate descriptive analyses were performed for all variables. Summary scores for each instrument were computed. Continuous variables are reported as $M \pm SD$ and categorical outcomes are reported as N (%). The normality of continuous outcomes was assessed. All variables were within acceptable ranges of skewness and kurtosis and, given the large sample size, parametric modelling was performed using untransformed scores. Pearson correlations were performed to test the bivariate association of the subscales with age and years to retirement.

Hypotheses were tested using a series of regression analyses. The two main outcomes of interest were: job satisfaction measured by the mean of all MMSS items and anticipated years to retirement. For the statistical models, income was coded as <$50k, $50k–<75k, $75k–100k and >$100k and having dependents were collapsed into a dichotomous variable "yes or no." For the model of job satisfaction, the a priori covariates of age and gender were added in step 1; personal characteristic measures (family income, being a primary financial provider in the household and having any dependents) were added in step 2; total WAI score and composite scores from the PES-NWI were added in step 3. In addition to p-value, amount of variance explained by each adjusted variable added was reported demonstrating the relative strength of each in the model. For the model predicting anticipated years to

retirement, the same strategy was used with the addition of job satisfaction at step 4. Residuals were examined to ensure that model assumptions were met.

3 | RESULTS

3.1 | Participant characteristics

Respondents were RNs between ages 40-79; mean age was 54.4 years (*SD* 7.7). Over half (59%/*N* = 1,646) reported Bachelor degrees or higher. The sample was 87.5%/*N* = 2,425 female and 12.5%/*N* = 345 male, Caucasian 85.9%/*N* = 2,376 and non-Hispanic 91.8%/*N* = 2,504. Most participants were married (65.3%/*N* = 1,808) or divorced (23.5%/*N* = 652). Over half of participants reported having at least one dependent (53%), which included children <6 years (8.0%/*N* = 115), 6–18 years (31.5%/*N* = 612), adult dependents (32.7%/*N* = 643) and other (24.1%/*N* = 415). Household income of >$50,000 was reported by 92.5%/*N* = 2529 and 69.8%/*N* = 1,937 classified themselves as primary financial providers. Most participants worked in medical/surgical/neurological and critical care (15.9% and 15.8% respectively). Participants were most likely to work full-time (81%/*N* = 2,257), during the day shift (70.3%/*N* = 1,947) and as staff nurses (57.1%/*N* = 1,581) (Table 1).

Overall, scores were generally on the high side for each scale. Overall mean on the MMSS (Table 2) was 3.6 (*SD* 0.7) and on the PES-NWI the mean was 2.7 (*SD* 0.6) (Table 3) with little difference noted between age groups. Similar findings were noted on the WAI (Table 4) with mean at 41.2 (*SD* 6.7).

3.2 | Job satisfaction

The final model of job satisfaction included age, successful ageing and work environment all ($p < .05$) (Table 5). Being older, having higher income, being a primary financial provider and having higher successful ageing and work environment scores were associated with higher job satisfaction. However, work environment accounted for 55% of the variance in job satisfaction. For every point increase in work environment (which ranged on a Likert scale from 1-4), there was an average increase in job satisfaction (which ranged on a Likert scale from 1-5) of 0.9 points.

3.3 | Years to retirement

Age accounted for most of the variance in years to retirement. After adjusting for other predictors, there was a monotonic trend in income ($p = .005$), with higher income brackets being associated with fewer anticipated years to retirement. Being a primary financial provider was associated with more years to retirement ($p = .04$). Successful ageing was associated with higher WAI scores and more anticipated years to retirement ($p < .001$). Contrary to the hypothesis, neither work environment nor job satisfaction was significantly associated with years to retirement. (Tables 6 & 7).

4 | DISCUSSION

4.1 | Job satisfaction

Understanding the effect that work environment, successful ageing and job satisfaction have on anticipated years to retirement among ageing nurses provides opportunities for researchers to expand knowledge for managers, health administrators and human resource personal relating to retention. Individually, these topics have been studied extensively but combined and examined among older acute care nurses, they take on new meaning. Although little research is specific to older nurses, the job satisfaction scores found here were consistent with earlier studies (Kovner, Brewer, Wu, Cheng, & Suzuki, 2006; Wilson, Squires, Widger, Cranley, & Tourangeau, 2008). These findings are also consistent with previous studies on job satisfaction and work environment (Cohen et al., 2009; Duffield et al., 2011) and job satisfaction and successful ageing (Cheung, 2013; Cheung & Wu, 2013). Job satisfaction in this study was found to be significantly associated with three factors—age, income and successful ageing. While statistically significant, these accounted for a very small amount of the variance in job satisfaction. Work environment operationalized by the PES-NWI explained by far the most variance in job satisfaction.

While all four were significant, it is noteworthy that work environment alone explained 55% of the variance in job satisfaction. This finding supports the theoretical premise, based on the modified Ellenbecker JRM, that extrinsic factors such as physical and organizational environment are important to job satisfaction in older RNs. This expands existing knowledge gained from research showing a positive correlation between physical (Hall, Doran, & Pink, 2008; Stone, Du, & Gershon, 2007) and organizational environment (Choi, Flynn, & Aiken, 2011; Duffield et al., 2011) and job satisfaction. In meta-analyses reported by Blegen (1993) and Irvine and Evans (1995), work environment had the strongest correlation to job satisfaction. The findings that nurses valued clinically competent nurse colleagues (*M* 3.1, *SD* 0.7), nurse–physician relationships (*M* 2.9, *SD* 0.7) and support and leadership abilities of the nurse manager (*M* 2.7, *SD* 0.8) (intrinsic factors of work environment) suggest that organizations can have an impact on job satisfaction.

The WAI was used in this study to measure successful ageing in nurses over age 40 years of age and findings corresponded to earlier studies noting that successful ageing was positively correlated with job satisfaction (Camarino et al., 2008; Weigl, Muller, Hornung, Zacher, & Angerer, 2012). Published research has reported that job satisfaction is the strongest predictor of remaining on the job for RNs; however in RNs greater than 40 years of age this study, work environment had the strongest relationship with remaining on the job.

4.2 | Years to retirement

This study found that successful ageing was strongly associated with self-report of years to retirement, confirming earlier studies on this topic (Camarino et al., 2008; Hasselhorn, Tackenberg, & Muller,

TABLE 1 Participant Characteristics (N = 2,789)

	Age group							
	40–49 (N = 806)		50–59 (N = 1,242)		60 + (N = 741)		Total (N = 2,789)	
	N	%	*N*	%	*N*	%	*N*	%
Gender								
Female	672	83.8%	1084	87.9%	669	91.0%	2425	87.5%
Male	130	16.2%	149	12.1%	66	9.0%	345	12.5%
Race								
White	617	77.7%	1081	87.7%	678	91.9%	2376	85.9%
Black or African American	78	9.8%	63	5.1%	28	3.8%	169	6.1%
Asian	50	6.3%	39	3.2%	8	1.1%	97	3.5%
Native Hawaiian or other Pacific Islander	1	0.1%	5	0.4%	1	0.1%	7	0.3%
American Indian or Alaska Native	4	0.5%	6	0.5%	8	1.1%	18	0.7%
Other (please specify)	44	5.5%	39	3.2%	15	2.0%	98	3.5%
Hispanic/Latino								
Yes, Hispanic or Latino	99	12.5%	98	8.1%	28	3.9%	225	8.2%
No, not Hispanic or Latino	693	87.5%	1113	91.9%	698	96.1%	2504	91.8%
Education								
Diploma programme	29	3.6%	86	6.9%	114	15.4%	229	8.2%
Associate degree	262	32.5%	440	35.4%	212	28.6%	914	32.8%
Bachelor's degree	378	46.9%	451	36.3%	254	34.3%	1083	38.8%
Master's degree	116	14.4%	222	17.9%	124	16.7%	462	16.6%
Doctorate	7	0.9%	24	1.9%	11	1.5%	42	1.5%
Other (please specify)	14	1.7%	19	1.5%	26	3.5%	59	2.1%
Marital status								
Married or in domestic partnership	548	68.3%	820	66.6%	440	59.8%	1808	65.3%
Widowed	7	0.9%	40	3.2%	73	9.9%	120	4.3%
Divorced/separated	184	22.9%	277	22.5%	191	26.0%	652	23.5%
Never married	63	7.9%	94	7.6%	32	4.3%	189	6.8%
Dependents								
None	132	16.4%	433	34.9%	219	29.6%	784	28.1%
Children <6 years	79	26.7%	25	3.9%	11	2.2%	115	8.0%
Children 6–18 years	412	65.5%	183	23.0%	17	3.3%	612	31.5%
Adult	176	45.0%	335	35.4%	132	21.0%	643	32.7%
Other	93	30.2%	211	25.9%	111	18.4%	415	24.1%
Number of dependents reported								
1	83	10.6%	213	17.4%	191	26.2%	487	17.8%
2	210	26.8%	603	49.3%	414	56.8%	1227	44.9%
3	174	22.2%	205	16.8%	76	10.4%	455	16.6%
4	181	23.1%	128	10.5%	20	2.7%	329	12.0%
5+	37	17.3%	21	6.0%	10	3.8%	68	8.7%
Income								
$35,000 or less	9	1.1%	17	1.4%	25	3.4%	51	1.9%
$35,001 to $50,000	49	6.2%	51	4.2%	54	7.4%	154	5.6%
$50,001 to $75,000	232	29.2%	337	27.7%	208	28.7%	777	28.4%
$75,001 to $100,000	228	28.7%	353	29.1%	233	32.1%	814	29.8%
More than $100,000	276	34.8%	457	37.6%	205	28.3%	938	34.3%

(Continues)

TABLE 1 (Continued)

	Age group							
	40–49 (*N* = 806)		50–59 (*N* = 1,242)		60 + (*N* = 741)		Total (*N* = 2,789)	
	N	%	*N*	%	*N*	%	*N*	%
Primary financial provider								
Yes	552	68.7%	855	69.1%	530	72.2%	1937	69.8%
No	252	31.3%	382	30.9%	204	27.8%	838	30.2%
Per cent time worked								
Full-time	702	87.5%	1047	84.6%	508	69.1%	2257	81.4%
Part-time	38	4.7%	102	8.2%	117	15.9%	257	9.3%
Per Diem	62	7.7%	88	7.1%	110	15.0%	260	9.4%
Job title								
Staff RN	491	61.2%	695	56.4%	395	53.6%	1581	57.1%
Charge nurse	94	11.7%	123	10.0%	73	9.9%	290	10.5%
Educator	32	4.0%	48	3.9%	32	4.3%	112	4.0%
Researcher	2	0.2%	6	0.5%	3	0.4%	11	0.4%
Management	90	11.2%	165	13.4%	87	11.8%	342	12.3%
Other (please specify)	93	11.6%	195	15.8%	147	19.9%	435	15.7%

Note: Ns vary by item as not all participants completed all items.

TABLE 2 Job satisfaction MMSS scale items

	Age groups											
	40–49 (*N* = 806)			50–59 (*N* = 1,242)			60 + (*N* = 741)			Total (*N* = 2,789)		
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
MMSS satisfaction with extrinsic rewards	791	3.4	0.9	1230	3.5	1.0	735	3.5	1.0	2756	3.5	1.0
MMSS satisfaction with scheduling	790	3.8	0.8	1230	3.8	0.8	735	3.9	0.8	2755	3.8	0.8
Opportunity for part-time work	774	2.7	1.1	1206	2.7	1.1	719	2.4	1.3	2699	2.6	1.2
MMSS satisfaction with co-workers	789	3.9	0.8	1229	4.0	0.8	735	4.1	0.8	2753	4.0	0.8
MMSS satisfaction with praise and recognition (w/o #26)	790	3.5	0.9	1230	3.6	1.0	734	3.7	1.0	2754	3.6	1.0
MMSS satisfaction with control and responsibility	790	3.1	1.0	1230	3.2	1.0	735	3.3	1.0	2755	3.2	1.0
MMSS mean of all items	791	3.5	0.7	1230	3.6	0.7	735	3.7	0.7	2756	3.6	0.7

Note: Per cent of missing ranged from 1.2% to 3.2% overall.

2003). As reported in other studies, age was found to be significantly associated with years to retirement: younger ages were associated with more anticipated years to retirement. Gender has been studied with differences noted between males and females relating to inequalities in retirement specifically income, the presence of a pension, years to retirement (Blackburn, Jarman, & Racko, 2015) and changing retirement patterns (Cahill, Giandrea, & Quinn, 2013). In the present study, age and gender were significantly associated with years to retirement. Findings on gender in this study are consistent with research from Blackburn et al., 2015 and Moen et al., 2016; . After controlling for age and gender, there were significant associations between being a primary financial provider and having dependents with years to retirement. This finding is consistent with studies reporting current financial situations such as being the primary provider or dependent family members as factors delaying retirement in women (Andrews et al., 2005; Cyr, 2005; Palumbo, McIntosh, Rambur, & Naud, 2009) and provides an avenue for future research to explore the relationship between all three factors and not income alone. Research has reported that perceived poor health and work ability (McGonagle, Barnes-Farrell, Fisher, & Grosch, 2015; Oude Hengel, Blatter, Geuskens, Koppes, & Bongers, 2012; von Bonsdorff et al., 2011) and physical work demands (Lund & Villadsen, 2005) are associated with retirement in the general workforce. This suggests that creating work environments that support physical and mental abilities of older RNs to complete their jobs may help delay their retirement.

Job satisfaction is an important topic and has long been reported as a strong and consistent predictor of retention in nursing with older nurses reporting higher levels of satisfaction and lower intent to leave (Faller, Gates, Georges, & Connelly, 2011; Roberts, Jones, & Lynn, 2004; Wang, Tao, Ellenbecker, & Liu, 2012). In Ellenbecker's original model, job satisfaction was directly related to retention.

TABLE 3 Work environment (PES-NWI)

	Age groups											
	40–49 (*N* = 806)			50–59 (*N* = 1,242)			60 + (*N* = 741)			Total (*N* = 2,789)		
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
PES-NWI 1: nurse practitioner in hospital affairs	747	2.6	0.6	1186	2.6	0.7	715	2.6	0.7	2648	2.6	0.7
PES-NWI 2: working with nurses who are clinically competent	740	3.1	0.7	1175	3.1	0.7	704	3.1	0.7	2619	3.1	0.7
PES-NWI 3: nurse manager ability, leadership, and support of nurses	747	2.7	0.7	1186	2.7	0.8	717	2.8	0.7	2650	2.7	0.8
PES-NWI 4: enough staff to get the work done	740	2.3	0.9	1181	2.4	1.0	710	2.4	0.9	2631	2.4	0.9
PES-NWI 5: collegial nurse–physician relations	747	2.9	0.7	1186	2.9	0.7	716	2.9	0.7	2649	2.9	0.7
PES-NWI: mean of all items	747	2.7	0.6	1186	2.7	0.6	717	2.7	0.6	2650	2.7	0.6

Note: Per cent of missing ranged from 5.0% to 6.1% overall.

TABLE 4 Succesful ageing (work ability index)

	Age groups											
	40–49 (*N* = 806)			50–59 (*N* = 1,242)			60 + (*N* = 741)			Total (*N* = 2,789)		
	N	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*	*N*	*M*	*SD*
WAI total scores	783	41.6	6.9	1224	41.2	6.7	733	40.9	6.7	2740	41.2	6.7
WAI categories	**N**	**%**		**N**	**%**		**N**	**%**		**N**	**%**	
Poor	42	5.4%		63	5.1%		32	4.4%		137	5.0%	
Moderate	95	12.1%		167	13.6%		126	17.2%		388	14.2%	
Good	274	35.0%		486	39.7%		284	38.7%		1044	38.1%	
Excellent	372	47.5%		508	41.5%		291	39.7%		1171	42.7%	

Note:: Per cent of missing ranged from 1.1% to 2.9% overall.

However, when exploring delayed retirement in the current study, this was not found to be the case. Job satisfaction was not found to be associated with delaying retirement. This may be due to using the word "retirement" in the present study rather than the more inclusive broader terms "retention" (Blake, Leach, Robbins, Pike, & Needleman, 2013), "intent to stay," "intent to leave" (McGilton, Tourangeau, Kavcic, & Wodchris, 2013) and "nurse turnover" (Currie & Carr Hill, 2012). This may also indicate that job satisfaction is not as important when studying delayed retirement, as opposed to retention. Research on perceptions and factors affecting retirement in the general work population has been published; however, intentions to delay retirement have not been studied extensively in nursing. Few studies are directed towards retirement of nurses specifically (Blakeley & Rubeiro, 2008; Boumans et al., 2008; Cyr, 2005; Friis, Ekholm, Hundrup, Obel, & Grønbaek, 2007). This illustrates the importance of research directed at decisions made by older nurses relating to retirement and possible environmental changes that could increase job satisfaction.

4.3 | Study limitations

A limitation of the current study was the use of a cross-sectional design and the purposive sampling strategy. The sample was limited to acute care nurses working in the hospital setting in the state of

TABLE 5 Pearson bivariate correlations

		Job satisfaction	Successful ageing	Work environment	Age	Years to retirement
Job satisfaction						
	r	1				
	p					
	N	2,756				
Successful ageing						
	r	0.309	1			
	p	<.001				
	N	2,737	2,740			
Work environment						
	r	0.763	0.289	1		
	p	<.001	<.001			
	N	2,649	2,650	2,650		
Age						
	r	0.114	−0.041	0.035	1	
	p	<.001	.038	.079		
	N	2,558	2,543	2,460	2,587	
Years to retirement						
	r	−0.049	0.082	0.013	−0.776	1
	p	.017	<.001	.521	<.001	
	N	2,365	2,352	2,276	2,221	2,394

TABLE 6 Job satisfaction models linear regression

	β	*SE*	*p*	R^2
Model 1				
Intercept	3.014	0.099	<.001	.267
Age (years)	0.010	0.002	<.001	.013
Gender	−0.020	0.043	.636	.000
Model 2				
Intercept	3.082	0.103	30.050	.000
Age (years)	0.011	0.002	6.343	.016
Gender	−0.037	0.043	-.856	.000
Income			<.001	.021
<$50k	−0.350	0.058	<.001	
$50k–$75k	−0.218	0.038	<.001	
$75k–$100k	−0.106	0.037	.004	
Primary provider	0.021	0.034	<.001	.000
Dependent	−0.079	0.032	.002	.002
Model 3				
Intercept	0.304	0.098	.002	.004
Age (years)	0.008	0.001	.000	.021
Gender	0.006	0.028	.829	.000
Income			.083	.005
<$50k	−0.068	0.039	.083	
$50k–$75k	−0.034	0.025	.176	
$75k–$100k	0.005	0.024	.822	
Primary provider	0.025	0.022	.251	.001
Dependent	−0.049	0.021	.019	.002
Successful ageing	0.011	0.002	<.001	.021
Work environment	0.878	0.016	<.001	.549

Note: Dependent Outcome: MMSS; Successful ageing measured by WAI, and Work environment measured by PES-NWI. Gender is coded 1 for female, 0 male; Income is coded as $50k, $50k–$75k, $75k–$100k, > $100k (reference); Primary provider and dependents references is No.

TABLE 7 Years to retirement models linear regression

	β	*SE*	*p*	R^2
Model 1				
Intercept	48.683	0.685	<.001	
Age (years)	−0.704	0.012	<.001	.600
Gender	0.679	0.290	.019	.002
Model 2				
Intercept	48.767	0.708	68.877	
Age (years)	−0.709	0.012	−57.026	.601
Gender	0.680	0.291	2.333	.003
Income			.066	
<$50k	0.485	0.391	1.241	
$50k–$75k	0.667	0.259	2.574	
$75k–$100k	0.216	0.250	.862	
Primary provider	−0.435	0.228	−1.905	.002
Dependent	0.090	0.212	.426	.000
Model 3				
Intercept	45.450	1.042	<.001	
Age (years)	−0.715	0.013	<.001	.602
Gender	−0.741	0.295	.012	.003
Income			.005	.006
<$50k	0.925	0.411	.025	
$50k–$75k	0.875	0.266	.001	
$75k–$100k	0.353	0.252	.162	.001
Primary provider	0.475	0.230	.039	.002
Dependent	−0.076	0.214	.722	.000
Successful ageing	0.067	0.017	<.001	.008
Work environment	0.234	0.250	.349	.000
Job satisfaction	0.050	0.212	.815	.000

Note: Dependent Outcome: MMSS; Successful ageing measured by WAI, and Work environment measured by PES-NWI. Gender is coded 1 for female, 0 male; Income is coded as $50k, $50k–$75k, $75k–$100k, > $100k (reference); Primary provider and dependents references is No.

Florida. Limitations may be the lack of a mandatory retirement age for RNs (Florida BRN, 2017) and decreasing defined benefit pension plans, not just RNs but in the US overall (Butrica, Iams, Smith, & Toder, 2009). Therefore, the sample of Florida RNs may not be representative of acute care nurses of the USA population overall and thus may limit the validity and generalizability across all other states. That being said, the sample was not dissimilar to the National Workforce Survey of Registered Nurses (NWSRN) (National Council of State Boards of Nursing, 2013) description of RNs in the USA. Another limitation was missing data. The current study's missing data were calculated at 1.3–6.1% on all scales and fall-off was noted to be random with higher percentages associated with questions in the later part of the survey, possibly due to subject fatigue. Relating to the findings about job satisfaction, variability for job satisfaction was low and, as a result, it may have limited detection of relationships. Another limitation of the current study, common to occupational health studies, is the 'healthy worker effect'. This limitation refers to the discrepancy of morbidity and mortality in workers (Porta, 2014) or when actively employed workers report more favourable morbidity or mortality experiences than the general public (McMichael, 1976). However, workers in the current study were compared across age groups and not to the general public. No planned retirement age was requested in this study and this information may be significant in continued research on delaying retirement. Finally, the strength of the large sample size in the current study (N = 2,789) may limit the influence of extreme observations or outliers increasing this study's generalizability.

5 | CONCLUSION

As the average age of nurses continues to increase and a need for well-educated, experienced nurses is observed, it is vital to understand and explain factors influencing retention and delaying retirement. Organizations continue to focus more attention on recruiting and much less, if at all, on retaining older, more

experienced nurses. Research has not focused on older acute care nurses despite evidence suggesting the need to do so. The median age of nurses in the latest NWSRN was 50 years old and more significantly 46% of nurses' older than 55 reported working at the bedside (Budden, Zhong, Moulton, & Cimiotti, 2013). Reports from around the world, including the USA, UK, China and Japan, show a lack of human resource and management policies and initiatives relating to retention and/or delaying retirement of older RNs.

Delaying retirement in older nurses is important because as the average age of RNs continues to increase, the need to engage and retain them by delaying retirement is vital to caring for the influx of Baby Boomers predicted to require medical care. Combined with the reduction of new workforce entrants predicted and the strain that a large influx of retirees would have on government entitlements creates a need for continued research in delaying retirement in RNs. The current research included RNs working at the bedside aged 40 and above, this population was studied specifically due to the increased physicality and emotional impact. Additional qualitative research would help increase understanding of these factors of working in acute care.

Research into the factors causing or effecting earlier retirement and reduced retention will lead to a greater understanding of their interplay between organizations and human resource offices and nurses' job decisions. Furthermore, it may provide important insight necessary to retain older nurses.

AUTHOR CONTRIBUTIONS

All authors have agreed on the final version and meet at least one of the following criteria [recommended by the ICMJE (http://www.icmje.org/recommendations/)]:

- substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data;
- drafting the article or revising it critically for important intellectual content.

CONFLICT OF INTEREST

No conflict of interest has been declared by the authors.

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REFERENCES

Abi Al Rub, R. F., Omari, F. H., & Al-Zaru, I. M. (2009). Support, satisfaction and retention among Jordanian nurses in private and public hospitals. *International Nursing Review*, *56*, 326–332. https://doi.org/10.1111/j.1466-7657.2009.00718.x

Aiken, L. H., Clarke, S. P., Sloane, D. M., Lake, E. T., & Cheney, T. (2008). Effects of hospital care on patient mortality and nurse outcomes. *Journal of Nursing Administration*, *38*(5), 223–229. https://doi.org/10.1097/01.NNA.0000312773.42352.d7

Aiken, L. H., & Patrician, P. A. (2000). Measuring organizational traits of hospitals: The Revised Nursing Work Index. *Nursing Research*, *49*, 146–153. https://doi.org/10.1097/00006199-200005000-00006

American Association of Critical-Care Nurses (AACN). (2011). *2011 Annual report: Shaping the future of nursing education*. Retrieved from AACN Web site: http://www.aacn.nche.edu/aacn-publications/annual-reports/AR2011.pdf on March 7, 2013.

Andrews, J., Manthorpe, J., & Watson, R. (2005). Employment transitions for older nurses: A qualitative study. *Nursing and Health Care Management and Policy*, *51*(3), 298–306.

Armstrong-Stassen, M. (2005). Human resource management strategies and the retention of older RNs. *Nursing Leadership*, *18*(1), 50–66. https://doi.org/10.12927/cjnl

Blackburn, R. M., Jarman, J., & Racko, G. (2015). Understanding gender inequality in employment and retirement. *Contemporary Social Science*, *11*, 238–252.

Blake, N., Leach, L. S., Robbins, W., Pike, N., & Needleman, J. (2013). Healthy work environments and staff nurse retention: The relationship between communication, collaboration and leadership in the Pediatric Intensive Care Unit. *Nursing Administration Quarterly*, *37*(4), 356–370. https://doi.org/10.1097/NAQ.0b013e3182a2fa47

Blakeley, J. A., & Rubeiro, V. E. S. (2008). Early retirement among Registered Nurses: Contributing factors. *Journal of Nursing Management*, *16*, 29–37. https://doi.org/10.1111/j.1365-2934.2007.00793.x

Blegen, M. A. (1993). Nurses' job satisfaction: a meta-analysis of related variables. *Nursing Research*, *42*(1), 36–41.

Blythe, J., Baumann, A., Zeytinoglu, I. U., Denton, M., Akhta-Danesh, N., Davies, S., & Kolotylo, C. (2008). Nursing generations in the contemporary workplace. *Public Personnel Management*, *37*(2 Summer), 137–159. https://doi.org/10.1177/009102600803700201

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

Budden, J. S., Zhong, E. H., Moulton, P., & Cimiotti, J. P. (2013). *Journal of Nursing Regulation*, *4*(2), 5–14. https://doi.org/10.1016/S2155-8256(15)30151-4

Bureau of Labor Statistics. (2012). *Bureau of Labor Statistics*. Retrieved from http://www.bls.gov/iif/on September 14, 2012.

Burtson, P. L., & Stichler, J. F. (2010). Nursing work environment and nurse caring: Relationship among motivational factors. *Journal of Advanced Nursing*, *66*(8), 1819–1839. https://doi.org/10.1111/j.1365-2648.2010.05336.x

Butrica, B. A., Iams, H. M., Smith, K. E., & Toder, E. J. (2009). The disappearing defined pension and its potential impact on the retirement incomes of baby boomers. *Social Security Bulletin*, *69*(3), 1–28.

Cahill, K. E., Giandrea, M. D., & Quinn, J. F. (2013, September). *Are Gender Differences Emerging in the Retirement Patterns of the Early Boomers* (Bureau of Labor Statistics). December 1, 2015, from Bureau of Labor Statistics. Retrieved from https://www.bls.gov/ore/pdf/ec130090.pdf

Calo, T. J. (2005). The generativity track: A transitional approach to retirement. *Public Personnel Management*, *34*(4), 301–313. https://doi.org/10.1177/009102600503400402

Camarino, D., Conway, P. M., van der Heijden, J. M., Estyn-Behr, M., Costa, G., & Hasselhorn, H. (2008). Age-dependent relationships between work ability, thinking of quitting the job and actual leaving among Italian nurses: A longitudinal study. *International Journal of Nursing Studies*, *45*, 1645–1659. https://doi.org/10.1016/j.ijnurstu.2008.03.002

Cheung, F. (2013). Older workers' successful aging and intention to stay. *Journal of Managerial Psychology*, *28*(6), 645–660. https://doi.org/10.1108/JPM-09-2011-0062

Cheung, F., & Wu, A. M. S. (2013). Emotional labour and successful ageing in the workplace among older Chinese employees. *Ageing and Society*, *33*(6), 1036–1051. https://doi.org/10.1017/S0144686X12000414

Cho, S. H., Ketefian, S., Barkauskas, V. H., & Smith, D. G. (2003). The effects of nurse staffing on adverse events, morbidity, mortality and medical costs. *Nursing Research*, *52*, 71–79. https://doi.org/10.1097/00006199-200303000-00003

Choi, J., Flynn, L., & Aiken, L. (2011). Nursing practice environment and registered nurses' job satisfaction in nursing homes. *Journal of Gerontology*, *52*(4), 484–492.

Chou, Y. (2012). *Associations of successful aging awareness with retirement preparation: A study of workers in a medical center*. Retrieved from Asia University: http://asiair.asia.edu.tw/ir/handle/310904400/12559 on December 13, 2012.

Christmas, K. (2008). How work environments impact retention. *Human Resource Solutions*, *26*(5), 316–318.

Cohen, J., Stuenkel, D., & Nguyen, Q. (2009). Providing a healthy work environment for nurses. The influence on retention. *Journal of Nursing Care Quality*, *24*(4), 308–315. https://doi.org/10.1097/NCQ.0b013e3181a4699a

Cummings, G. G., Olson, K., Hayduk, L., Bakker, D., Fitch, M., Green, E., & Butler, L., … Conlon, M. (2008). The relationship between nursing leadership and nurses' job satisfaction in Canadian oncology work environments. *Journal of Nursing Management*, *16*, 508–518. https://doi.org/10.1111/j.1365-2834.2008.00897.x

Currie, E. J., & Carr Hill, R. A. (2012). What are the reasons for high turnover in nursing? A discussion of presumed causal factors and remedies. *International Journal of Nursing Studies*, *49*(9), 1180–1189. https://doi.org/10.1016/j.ijnurstu.2012.01.001

Cyr, J. P. (2005). Retaining older hospital nurses and delaying their retirement. *Journal of Nursing Administration*, *35*(12), 563–567. https://doi.org/10.1097/00005110-200512000-00011

Delobelle, P., Rawlinson, J. L., Ntuli, S., Malatsi, I., Decock, R., & Depoorter, A. M. (2010). Job satisfaction and turnover intent of primary healthcare nurses in rural South Africa: A questionnaire survey. *Journal of Advanced Nursing*, *67*(2), 371–383.

Duffield, C., Diers, D., O'Brien-Pallas, L., Aisbett, C., Roche, M., King, M., & Aisbett, K. (2011). Nursing staffing, nursing workload, the work environment and patient outcomes. *Applied Nursing Research*, *24*, 244–255. https://doi.org/10.1016/j.apnr.2009.12.004

Duffield, C. M., Roche, M. A., Blay, N., & Stasa, H. (2010). Nursing unit managers, staff retention and the work environment. *Journal of Clinical Nursing*, *20*, 23–33.

Ellenbecker, C. H. (2004). A theoretical model of job retention for home health care nurses. *Journal of Advanced Nursing*, *47*(3), 303–310. https://doi.org/10.1111/j.1365-2648.2004.03094.x

Eurostat, Active (2012). *Ageing and solidarity between generations, a statistical portrait of the European Union 2012*. Luxenburg: Publications Office of the European Union.

Faller, M. S., Gates, M. G., Georges, J. M., & Connelly, C. D. (2011). Work related burnout, job satisfaction, intent to leave and nurse-assessed quality of care among travel nurses. *Journal of Nursing Administration*, *41*(2), 71–77. https://doi.org/10.1097/NNA.0b013e3182059492

Fisher, B. J. (1995). Successful aging, life satisfaction and generativity in later life. *The International Journal of Aging and Human Development*, *41*(3), 239–250. https://doi.org/10.2190/HA9X-H48D-9GYB-85XW

Fitzgerald, D. C. (2007). Aging, experienced nurses: Their value and needs. *Contemporary Nurse*, *24*(2), 237–242. https://doi.org/10.5172/conu.2007.24.2.237

Florida, BRN. (2017). *Florida Board of registered nursing*. Retrieved from http://floridasnursing.gov/on April 3, 2017.

Friis, K., Ekholm, O., Hundrup, Y. A., Obel, E. B., & Grønbaek, 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*, *35*, 23–30.

Hall, L. M., Doran, D., & Pink, L. (2008). Outcomes of interventions to improve hospital nursing work environments. *Journal of Nursing Administration*, *38*(1), 40–46. https://doi.org/10.1097/01.NNA.0000295631.72721.17

Hasselhorn, H.-M., Tackenberg, P., & Muller, B. H. (2003). *Working conditions and intent to leave the profession among nursing staff in Europe (Working Life Research Report 7)*. Stockholm: National Institute for Working Life Stockholm.

Hatcher, B. J., Bleich, M. R., Connolly, C., Davis, K., Hewlett, P., & Hill, K. (2006). *Wisdom at Work: The Importance of the older and experienced nurse in the workplace (Robert Wood Johnson Foundation)*. Princeton, NJ: Robert Wood Johnson Foundation.

Hayes, B., Bonner, A., & Pryor, J. (2010). Factors contributing to nurse job satisfaction in the acute hospital setting: A review of recent literature. *Journal of Nursing Management*, *18*, 804–814. https://doi.org/10.1111/j.1365-2834.2010.01131.x

Healthcare, A. M. N. (2013). *2013 Survey of registered nurses: Generation gap grows as healthcare transforms*. San Diego, CA: AMN Healthcare Inc.

Heidkamp, M., Mabe, W., & DeGraaf, B. (2012). *The public workforce system: Serving older job seekers and the disability implications of an aging workforce (NTAR Leadership Center)*. New Brunswick, NJ: Rutgers University.

Horner, E. M. (2014). Subjective well-being and retirement: analysis and policy recommendations. *Journal of Happiness Studies*, *15*, 125–144.

Iliopoulos, K. K., & While, A. E. (2010). Professional autonomy and job satisfaction: Survey of critical care nurses in mainland Greece. *Journal of Advanced Nursing*, *66*(11), 2520–2531. https://doi.org/10.1111/j.1365-2648.2010.05424.x

Ilmarinen, J. (1999). *Ageing workers in the European Union – Status and promotion of work ability, employability and employment*. Helsinki: National Institute of Occupational Health.

Ilmarinen, J. (2006). Towards a longer and better working life: A challenge of work force ageing. *La Medicina Del Lavoro*, *97*, 143–147.

Ilmarinen, J., & Tuomi, K. (2004). Past present and future of work ability. In J. Ilmarinen (Ed.), *Past present and future of work ability*. People and Work Research Report 65 (pp. 1–25). Helsinki: Finnish Institute of Occupational Health.

Irvine, D. M., & Evans, M. G. (1995). Job satisfaction and turnover among nurses: Integrating research findings across studies. *Nursing Research*, *44*(4), 246–253.

Jones, C. B. (2008). Revisiting nurse turnover costs. *Journal of Nursing Administration*, *38*(1), 11–18. https://doi.org/10.1097/01.NNA.0000295636.03216.6f

Juraschek, S. P., Zhang, X., Ranganathan, V. K., & Lin, V. W. (2012). United States registered nurse workforce report card and shortage forecast. *American Journal of Medical Quality*, *27*(3), 241–249. https://doi.org/10.1177/1062860611416634

Kautonen, T., Down, S., & Minniti, M. (2013). Ageing and entrepreneurial preferences. *Small Business Economics*, *42*(3), 579–594.

Korman, A. K., Wittig-Berman, U., & Lang, D. (1981). Career success and personal failure: Alienation in professionals and managers. *Academy of Management Journal*, *24*, 342–360. https://doi.org/10.2307/255846

Kovner, C., Brewer, C., Wu, Y. W., Cheng, Y., & Suzuki, M. (2006). Factors associated with work satisfaction of registered nurses. *Journal of Nursing Scholarship*, *38*, 71–79. https://doi.org/10.1111/j.1547-5069.2006.00080.x

Kramer, M., & Schmalenberg, C. (2012). Confirmation of a healthy work environment. *Critical Care Nurse*, *28*(2), 56–64.

Lake, E. T. (2002). Development of the practice environment scale of the nursing work index. *Research in Nursing and Health*, *25*(3), 176–188. https://doi.org/10.1002/(ISSN)1098-240X

Laschinger, H. K., Leiter, M., Day, A., & Gilin, D. (2009). Workplace empowerment, incivility and burnout: Impact on staff nurse recruitment and retention outcomes. *Journal of Nursing Management*, *17*, 302–311. https://doi.org/10.1111/j.1365-2834.2009.00999.x

Letvak, S. (2002). Retaining the older nurse. *Journal of Nursing Administration*, *32*(7/8), 387–392. https://doi.org/10.1097/00005110-200207000-00006

Letvak, S. (2003). The experience of being an older perioperative nurse. *Association of Perioperative Registered Nurses Journal*, *78*(4), 635–649. https://doi.org/10.1016/S0001-2092(06)60670-4

Letvak, S., & Buck, R. (2008). Factors influencing work productivity and intent to stay in nursing. *Nursing Economics*, *26*(3), 159–165.

Li, Y., & Jones, C. B. (2013). A literature review of nursing turnover costs. *Journal of Nursing Management*, *21*(3), 405–418. https://doi.org/10.1111/j.1365-2834.2012.01411.x

Litvak, E., & Bisognano, M. (2011). More patients, less payment, increasing hospital efficiency in the aftermath of health reform. *Health Affairs*, *30*(1), 76–80. https://doi.org/10.1377/hlthaff.2010.1114

Liu, K., You, L., Chen, S., Hao, Y., Zhu, X., Zhang, L., & Aiken, L. H. (2012). The relationship between hospital work environment and nurse outcomes in Guangdong, China: A nurse questionnaire survey. *Journal of Clinical Nursing*, *21*(9–10), 1453–1465.

Loretto, W., & Vickerstaff, S. (2012). The domestic and gendered context for retirement. *Human Relations*, *66*(1), 65–86.

Lum, L., Kervin, J., Clark, K., Reid, F., & Sirola, W. (1998). Explaining nursing turnover intent: Job satisfaction, pay satisfaction, or organizational commitment? *Journal of Organizational Behavior*, *19*, 305–320. https://doi.org/10.1002/(ISSN)1099-1379

Lund, T., & Villadsen, E. (2005). Who retires early and why? Determinants of early retirement pension among Danish employees 57–62 years. *European Journal of Ageing*, *2*, 275–280. https://doi.org/10.1007/s10433-005-0013-x

McGilton, K. S., Tourangeau, A., Kavcic, C., & Wodchris, W. P. (2013). Determinants of regulated nurses' intention to stay in long-term care homes. *Journal of Nursing Management*, *21*(5), 771–781. https://doi.org/10.1111/jonm.12130

McGonagle, A. K., Barnes-Farrell, J. L., Fisher, G. G., & Grosch, J. W. (2015). Individual and work factors related to perceived work ability and labor force outcomes. *Journal of Applied Psychology*, *100*(2), 376–398. https://doi.org/10.1037/a0037974

McMichael, M. D. (1976). Standardized mortality ratios and the 'healthy worker effect": Scratching beneath the surface. *Journal of Occupational and Environmental*, *18*(3), 165–168. https://doi.org/10.1097/00043764-197603000-00009

Moen, P., Kojola, E., Kelly, E. L., & Karakaya, Y. (2016). Men and women expecting to work longer: Do changing work conditions matter? *Work, Aging and Retirement*, *2*(3), 321–344. https://doi.org/10.1093/workar/waw018

Mueller, C. W., & McCloskey, J. C. (1990). Nurses' job satisfaction: A proposed measure. *Nursing Research*, *39*(2), 113–118.

Müller, A., Weigl, M., Heiden, B., Glaser, J., & Angerer, P. (2012). Promoting work ability and well being in hospital nursing: The interplay of age, job control and successful ageing strategies. *Work*, *41*, 5137–5144.

National Council of State Boards of Nursing. (2013). The National Council of State Boards of nursing and the forum of state nursing workforce centers 2013 National Workforce Survey of RNs. *Journal of Nursing Relations*, *4*(Suppl.), S1–S72.

Ning, S., Zhong, H., Libo, W., & Quijie, L. (2009). The impact of nurse empowerment on job satisfaction. *Journal of Advanced Nursing*, *65*(12), 2642–2648. https://doi.org/10.1111/j.1365-2648.2009.05133.x

Nursing Solutions, Inc. (2016). B. Colosi (Ed.), *2016 National Healthcare Retention & RN Staffing Report*. Retrieved from http://www.nsinursingsolutions.com/Files/assets/library/retention-institute/NationalHealthcareRNRetentionReport2016.pdf on 23 August 2017

Oude Hengel, K. M., Blatter, B. M., Geuskens, G. A., Koppes, L. L. J., & Bongers, P. M. (2012). Factors associated with the ability and willingness to continue working until the age of 65 in construction workers. *International Archives of Occupational and Environmental Health*, *85*, 783–790. https://doi.org/10.1007/s00420-011-0719-3

Oulton, J. A. (2006). The global nursing shortage: An overview of issues and actions. *Policy, Politics, & Nursing Practice*, *7*(3S), 34S–39S. https://doi.org/10.1177/1527154406293968

Palumbo, M. V., McIntosh, B., Rambur, B., & Naud, S. (2009). Retaining an aging nurse workforce: Perceptions of human resource practices. *Nursing Economics*, *27*(4), 221–227.

Pavalko, E. K., Gong, F., & Long, J. S. (2007). Women's work, cohort change and health. *Journal of Health and Social Behavior*, *48*, 352–368. https://doi.org/10.1177/002214650704800402

Porta, M. (Ed.). (2014). *A Dictionary of Epidemiology*. Retrieved from Oxford Reference http://www.oxfordreference.com/view/10.1093/acref/9780195314496.001.0001/acref-9780195314496-e-917?rskey=QfS3N8&result=2 on April 26, 2015.

Roberts, B. J., Jones, C., & Lynn, M. (2004). Job satisfaction of new baccalaureate nurses. *Journal of Nursing Administration*, *34*(9), 428–435. https://doi.org/10.1097/00005110-200409000-00009

Robson, S. M., Hansson, R. O., Abalos, A., & Booth, M. (2006). Successful aging criteria for aging well in the workplace. *Journal of Career Development*, *33*(2), 156–177. https://doi.org/10.1177/0894845306292533

Sanders, M. J., & McCready, J. W. (2010). Does work contribute to successful aging outcomes in older workers? *The International Journal of Aging and Human Development*, *71*(3), 209–229. https://doi.org/10.2190/AG.71.3.c

Schulz, R., & Heckhausen, J. (1996). A life span model of successful aging. *American Psychologist*, *51*(7), 702–714. https://doi.org/10.1037/0003-066X.51.7.702

Sparks, A. M. (2012). Psychological empowerment and job satisfaction between baby boomer and generation X nurses. *Journal of Nursing Management*, *20*, 451–460. https://doi.org/10.1111/j.1365-2834.2011.01282.x

Spector, P. (2006). *Industrial and organizational psychology: Research and practice*, 4th edn. Hoboken, NJ: John Wiley & Sons.

Spetz, J. (2008). 2008 Survey of registered nurses (California Board of Registered Nurses). Retrieved from Department of Consumer Affairs Board of Registered Nursing http://www.rn.ca.gov/pdfs/forms/survey2008.pdf on May 30, 2011.

Spiva, L., Hart, P., & McVay, F. (2011). Discovering ways that influence the older nurse to continue bedside nursing. *Nursing Research and Practice*, *2011*, 8.

Stone, P. W., Du, Y., & Gershon, R. R. (2007). Organizational climate and occupational health outcomes in hospital nurses. *The Journal of Occupational and Environmental Medicine*, *49*(1), 50–58. https://doi.org/10.1097/01.jom.0000251622.05429.0c

Toosi, M. (2012, January). Labor force projections to 2020: a more slowly growing workforce [Press release]. Bureau of Labor Statistics. Retrieved from http://stat.bls.gov/opub/mlr/2012/01/art3full.pdf on 10 June 2012.

Tuomi, K., Ilmarinen, J., Jahkola, A., Katajarinne, L., & Tulkki, A. (1998). *Work ability index*, 2nd edn. Helsinki: Institute of Occupational Health.

Tuomi, K., Ilmarinen, J., Seitsamo, J., Huuhtanen, P., Martikainen, R., Nygard, C. H., & Klockars, M. (1997). Summary of the Finnish research project (1981-1992) to promote the health and work ability of aging workers. *Scandinavian Journal of Work, Environment & Health*, *23*(1), 66–71.

von Bonsdorff, M. B., Seitsamo, J., Ilmarinen, J., Nygård, C., von Bonsdorff, M. E., & Rantanen, T. (2011). Work ability in midlife as a predictor of mortality and disability in later life: A 28-year prospective follow-up study. *Canadian Medical Association Journal*, *183*, E235–E242. https://doi.org/10.1503/cmaj.100713

Walker, L., & Clendon, J. (2013). Ageing in place: Retirement intentions of New Zealand nurses aged 50 + . Labour Employment and Work in New Zealand, 1-9.

Wallace, N. (2017). The average retirement age in every state in 2015. SmartAsset.

Wang, L., Tao, H., Ellenbecker, C. H., & Liu, X. (2012). Job satisfaction, occupational commitment and intent to stay among Chinese nurses: A cross-sectional questionnaire survey. *Journal of Advanced Nursing*, *68*(3), 539–549. https://doi.org/10.1111/j.1365-2648.2011.05755.x

Weigl, M., Muller, A., Hornung, S., Zacher, H., & Angerer, P. (2012). The moderating effects of job control and selection, optimization and compensation strategies on the age–work ability relationship. *Journal of Organizational Behavior*, *34*, 607–628.

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

Wieck, K. L., Dols, J., & Landrum, P. (2010). Retention priorities for the intergenerational nurse workforce. *Nursing Forum*, *45*(1), 7–17. https://doi.org/10.1111/j.1744-6198.2009.00159.x

Wilson, B., Squires, M., Widger, K., Cranley, L., & Tourangeau, A. (2008). Job satisfaction among a multigenerational nursing workforce. *Journal of Nursing Management*, *16*, 719–723.

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