Effects of resilience, burnout, and work-related physical pain on work-life balance of registered nurses in South Korean nursing homes
A cross-sectional study

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Abstract

Background: While nursing homes increase, the number of registered nurses (RNs) working there continues to decline. This study explored the effects of resilience, burnout, and work-related physical distress on the work-life balance of RNs to improve retention rates.

Methods: This cross-sectional study involved 155 RNs working in 37 nursing homes, spread across 10 South Korean cities. Data were collected from May to July 2019 using self-report questionnaires, with items relating to general and work-related characteristics, work-life balance, resilience, and burnout. Multiple regression analysis was performed to identify factors affecting participants' work-life balance, including variables that showed significant results in univariate analysis. All analyses were performed using the PASW SPSS win 26.0 program.

Results: Participants' average age was 48.48 years, and they had been working as RNs for 17.36 years on average. Work-related physical pain was reported by 70.3% of participants. Resilience had a positive correlation with work-life balance ($r = 0.38$; $P < .001$), whereas burnout had a negative correlation with work-life balance ($r = -0.45$; $P < .001$). Work-related physical pain ($\beta = -0.27$; 95% confidence interval [CI], −25.89 to −7.48), resilience ($\beta = 0.20$; 95% CI, 0.02–0.70), and burnout ($\beta = -0.33$; 95% CI, −0.9 to −0.24) affected participants' work-life balance.

Conclusion: Interventions to facilitate work-life balance among nursing home RNs must aim to increase resilience and reduce burnout and work-related physical pain. A healthy work-life balance should improve RN retention in nursing homes, boosting the safety and quality of life of residents in turn.

Abbreviations: CI = confidence interval, CAN = certificated nursing assistant, MBI = Maslach Burnout Inventory, RN = registered nurse, US = United States.

Keywords: burnout, employment, nurses, nursing homes, pain perception

1. Introduction

Nursing homes, living facilities for older adults, are often staffed by nursing professionals who care for residents with chronic diseases. Therefore, to maintain the quality of care provided to residents, the required number of essential nursing personnel is designated by law in many countries.[1] Registered nurses (RNs) play a crucial role, and developed countries such as the US have long strived toward a high minimum number of RNs.[2]

RNs in nursing homes serve as administrators and managers who educate and supervise nursing assistants and other staff and provide direct nursing care and treatment plans for residents with complex needs.[3] RNs also play the role of care coordinator—they help to plan and coordinate care provided to older adults in nursing homes.[4] Systematic reviews consistently link high RN numbers to improvement in care quality and outcomes.[5,6]

South Korea implemented long-term care insurance in 2008,[7] which allows older adults to live in nursing homes by supporting them financially. From 2010 to 2019, the number of older adults increased from 94,246 in 1943 nursing homes to 174,634 in 3604 nursing homes nationwide.[8] However, the number of RNs working in nursing homes has decreased from 1632 in 2010 to 1582 in 2019.[9] Consequently, older adults have limited access to direct RN care. A recent preliminary study

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found that older adults in South Korea receive about 10 minutes of care from an RN per day.[10]

Several studies have taken an ecological approach to account for the decline in active RNs, exploring barriers and difficulties of RN-provided care due to the impact of organizational and work environments. However, RNs' personal circumstances have also been identified as important factors. A systematic review and meta-analyses derived 52 categories for classifying factors affecting RNs' turnover intention in Korean hospitals. Of those, 18 were attributed to personal and work-related characteristics.[11] Personal factors influencing RN retention were age, work experience, marital status, physical and mental health, salary level, position in facility, and burnout.[11–13]

A previous study investigating the relationship between burnout and missed care reported that 29.7% of RNs experienced burnout due to inadequate time or resources.[14] In addition, a survey on injuries among US healthcare workers found that 54% of health care providers experienced work-related physical injuries such as strains and sprains. These types of injuries occur more among medical staff in nursing homes as their environment differs from the hospital environment.[15]

Recent research emphasizes the balance between work and life as an important concept for RNs engaged in shift work, housework, and childcare.[16,17] Moreover, high resilience improved RNs' ability to cope with stress and maintain a healthy work-life balance.[17,18]

1.1. Purpose

This study aimed to explore the effect of resilience, burnout, and work-related physical pain on the work-life balance of RNs. The results of this study will contribute to improving the retention rate of RNs in nursing homes.

2. Materials and Methods

2.1. Study design, setting, and participants

This cross-sectional study used purposive sampling. We used the list of long-term care facilities on the National Health Insurance Corporation website to recruit participants. Participants were invited after telephonically explaining the study to the managers of nursing homes reported to have an RN. The final sample included 155 RNs from 37 nursing homes in 10 cities. We calculated the sample size using G*Power 3.1 program (Heinrich-Heine-University, Aichach, Germany) (effect size = 0.15; α = 0.05; power = 0.95; prediction of 6 independent variables)[19]; the minimum required sample size was 146, considering a dropout rate of approximately 10%. Data were collected from May to July 2019. The inclusion criteria were: RNs currently providing direct care to nursing home residents and being employed by their current facility for more than 1 month. The exclusion criterion was if the owner of the nursing home met the inclusion criteria.

2.2. Measures

2.2.1. General and work-related characteristics. Participants' general and work-related characteristics included age, number of years working as an RN, marital status, educational level, shift work, role in the facility, salary level, number of residents during most recent shift, and work-related physical pain. To examine the presence of physical pain experienced by RNs in nursing homes, guidelines from the investigation of musculoskeletal burden work hazard by the Korea Occupational Safety and Health Agency[20] were used. Participants responded to one question: "Have you experienced pain while working during the past year?"

2.2.2. Work-life balance. The Korean version of the work-life balance tool was used to measure work and life balance.[21] This tool comprises 29 questions across 4 subdomains: work-growth balance (9), work-leisure balance (8), work-family balance (8), and work-life overall evaluation (4). Responses are recorded on a 7-point Likert scale (0 = not at all, 6 = very much so). The questionnaire includes negative items; thus, reverse scoring was used. Higher total scores for each subdomain indicated better work-life balance. Each domain's Cronbach's α ranged from 0.676 to 0.847 in a previous study.[21] In this study, the Cronbach's α was 0.749 to 0.903 for each domain.

2.2.3. Resilience. This study used the Korean-resilience tool developed by Park and Park to measure resilience in nurses.[22] This tool contains 30 questions across 5 domains: dispositional pattern (5), relational pattern (4), situational pattern (10), philosophical pattern (6), and professional pattern (5). Responses are recorded on a 5-point Likert scale (1 = not at all, 5 = very so); higher scores indicate higher levels of resilience. At the time of development, the Cronbach's α was 0.76 to 0.89 for each domain.[22] In this study, the Cronbach's α was 0.624 to 0.913 for each domain.

2.2.4. Burnout. Burnout was measured using the Korean version of the Maslach Burnout Inventory, developed by Maslach et al[23] and translated into Korean by Kang and Kim.[23] The license for its use was purchased from Mind Garden Inc (Menlo Park, CA). The Maslach Burnout Inventory tool includes 22 items across 3 domains: emotional exhaustion (9), personal accomplishment (8), and depersonalization (5). Responses are recorded on a 7-point Likert scale (6 = everyday, 0 = not at all), with higher total scores indicating a higher level of burnout. Cronbach's α = 0.76 at the time of development,[23] Cronbach's α was 0.85 in the previous study,[24] and it was 0.898 in the present study.

2.3. Data analyses

Descriptive statistics (frequency, percentage, mean, and standard deviation) were used to analyze the general and job-related characteristics of RNs. Independent t tests were used to examine differences between resilience, burnout, and work-life balance based on participants' characteristics. Pearson's correlation analysis was used to assess the relationship between continuous variables. Finally, multiple regression analysis was performed, including variables that showed significant results in univariate analysis, to identify factors affecting the work-life balance of RNs in nursing homes. In this analysis, the ownership, location, number of beds, and work environment were controlled to minimize the effect of facility characteristics. All analyses were performed using PASW SPSS win 26.0 (IBM Corp., Armonk, New York, NY). P values <.05 were considered significant.

2.4. Ethical considerations

This study was conducted in accordance with the standards of the Declaration of Helsinki, and was approved by the Wonkwang University Institutional Review (WKIRB-202012-SB-090) and Board Yonsei University Health System Research Ethics Committee (Y-2019-0032). All participants provided informed consent after receiving an explanation of the study purpose and methods.

3. Results

3.1. Demographic and work-related characteristics of registered nurses

Participants' average age was 48.48 ± 9.47 years, ranging between 25 and 67 years. The average working period as RN

was 17.36 ± 9.12 years, ranging between 1 and 45 years. Most RNs (83.9%) were married, 45.2% had a bachelor's degree or higher, 8.06% were permanently employed, and 51.0% were shift workers. Of these, 38.1% had both managerial and caring duties. Moreover, 76.1% of RNs earned less than 3 million won per month. In addition, 70.3% of RNs experienced work-related physical pain and were responsible for an average of 62.58 ± 42.56 (range: 12–204) older adults during their most recent shift.

3.2. Resilience, burnout, and work-life balance

RNs' average resilience score was 121.99 ± 15.14 (range: 87–199), average burnout score was 31.94 ± 16.06 (range: 0–71), and average work-life balance score was 3.36 ± 0.95 (range: 0–6). In the work-life balance subdomains, RNs scored the highest in work-growth balance (3.53) and lowest in work-family balance (3.10; Table 1).

3.3. Differences in resilience, burnout, and work-life balance based on demographic and work-related characteristics

A statistically significant difference was found between demographic and work-related characteristics and work-life balance, based on the presence of work-related physical pain ($t = -3.66$; $P < .001$). RNs who did not experience work-related physical pain had better work-life balance compared with those who did. However, no significant difference was found in levels of resilience and burnout based on the presence of work-related physical pain.

No difference was found in work-life balance based on other demographic and work-related characteristics. Moreover, no differences were found in RNs' resilience and burnout levels based on marital status, education level, job security, role in the facility, and salary level (Table 2).

3.4. Correlation of resilience, burnout, and work-life balance in registered nurses in nursing homes

RNs' resilience showed a positive correlation with work-life balance ($r = 0.38$; $P < .001$), and a negative correlation with burnout ($r = -0.45$; $P < .001$). However, age, working years as an RN, and the number of residents on the last duty did not correlate with work-life balance (Table 3).

3.5. Factors influencing work-life balance of registered nurses in nursing homes

To identify the factors that affect the work-life balance of RNs in nursing homes, a multiple regression analysis was performed, including the presence of work-related physical pain, resilience, and burnout, which were statistically significant in univariate analysis. The variance inflation factor values for multicollinearity conformed before the final analysis were 1.04 to 3.92, indicating no multicollinearity problem between the independent variables. This regression model was statistically significant ($F = 5.49$; $P < .001$). Physical pain ($\beta = -0.27$; $P < .001$), resilience ($\beta = 0.20$; $P = .04$), and burnout ($\beta = -0.33$; $P = .001$) affect work-life balance. Presence of work-related physical pain and increased burnout leads to a poor work-life balance among RNs; however, increased levels of resilience lead to better balance. The explanatory power by the variables was confirmed as 25% (Table 4).

4. Discussion

This study explored the effects of resilience, burnout, and work-related physical pain on the work-life balance of RNs in nursing homes. The study indicates found a work-life balance score of 3.53 among RNs in nursing homes—2.45 points higher than a previous study examining the work-life balance of 85 clinical RNs using the same measurement tool,[25] and 2.9 points higher compared with a sample of female service workers.[26] The higher work-life balance of RNs in nursing homes compared with women in other settings or occupations could be because RNs in nursing homes are older (M = 48). According to Erickson's life cycle theory,[27] this age corresponds to the middle adulthood phase of the life process. However, the age of participants in previous studies (M ≤ 40), corresponds to early adulthood. Early adulthood is typically a busy period, filled with childrearing and work responsibilities. This is in line with the results of studies indicating that participants under the age of 30 years and between 30 and 49 years were less satisfied with their work-life balance.[25,28]

The advantages of employing older and more experienced nurses include their higher expertise, dedication, and decision-making skills.[29] A systematic analysis of 6 studies on the effectiveness of communication interventions for medical service providers, revealed that skilled communication and knowledge resulted in positive outcomes for residents.[30] Moreover, increased work experience is a factor of work-life balance, as demonstrated by the high work-growth scores of participants in the current study. Therefore, nursing homes can be a good post-retirement job for RNs who can no longer work in acute hospitals due to their age, an attribute that could be productively leveraged by policymakers.

Table 1

Demographic and work-related characteristics of registered nurses (N = 155).

Variables	N (%) or M ± SD	Range
Age (yr)	48.48 ± 9.47	25–67
Working years as an RN	17.36 ± 9.12	14–5
Marital status		
Yes	130 (83.9)	
No	25 (16.1)	
Education level		
Diploma	85 (54.8)	
≥Baccalaureate	70 (45.2)	
Job security		
Permanent	125 (80.6)	
Temporary	30 (19.4)	
Shift work		
Yes	79 (51.0)	
No	76 (49.0)	
Role in the facility		
Manager	59 (38.1)	
Staff	96 (61.9)	
Salary level (10,000 won)		
<300	118 (76.1)	
≥300	37 (23.9)	
Work-related physical pain		
Yes	109 (70.3)	
No	46 (29.7)	
Number of residents on last duty	62.58 ± 42.56	12–204
Resilience	121.99 ± 15.14	87–199
Burnout	31.94 ± 16.07	0–71
Work-life balance	3.36 ± 0.95	0–6
Work-growth balance	3.53 ± 0.89	0–6
Work-leisure balance	3.37 ± 1.24	0–6
Work-family balance	3.10 ± 1.26	0–6
Work-life evaluation	3.39 ± 1.24	0–6

Table 2

Differences in resilience, burnout, and work-life balance according to demographic and work-related characteristics (N = 155).

		Resilience		Burnout		Work-life balance	
Variables	N	M ± SD	t (P)	M ± SD	t (P)	M ± SD	t (P)
Marital status							
Yes	130	122.00 ± 15.57	0.01 (.990)	32.13 ± 16.39	0.33 (.745)	96.14 ± 29.22	−1.95 (.056)
No	25	121.96 ± 12.88		30.96 ± 14.62		104.16 ± 15.96	
Education level							
Diploma	85	122.52 ± 16.82	0.13 (.647)	31.23 ± 15.37	0.57 (.571)	101.11 ± 28.56	−1.84 (.069)
≥BSN	70	121.38 ± 12.99		32.75 ± 16.92		92.85 ± 25.75	
Job security							
Permanent	125	122.83 ± 14.72	−1.36 (.175)	31.38 ± 16.12	0.83 (.410)	97.56 ± 26.75	−0.08 (.940)
Temporary	30	118.63 ± 16.52		34.10 ± 15.95		97.13 ± 31.18	
Shift work							
Yes	79	121.30 ± 14.58	−0.40 (.689)	33.53 ± 15.28	1.05 (.296)	93.42 ± 27.10	−1.70 (.091)
No	76	122.29 ± 15.50		30.73 ± 16.69		101.09 ± 27.82	
Role in the facility							
Manager	59	124.64 ± 16.05	1.71 (.089)	31.02 ± 16.96	−0.54 (.592)	95.66 ± 27.11	−0.62 (.536)
Staff	96	120.33 ± 14.37		32.49 ± 15.58		98.55 ± 27.95	
Salary level							
<300	118	121.04 ± 15.74	1.38 (.168)	31.89 ± 15.72	0.06 (.950)	97.95 ± 27.64	−0.37 (.709)
≥300	37	125.03 ± 12.75		32.08 ± 17.29		95.97 ± 27.72	
Work-related physical pain							
Yes	109	121.99 ± 15.68	−0.06 (.950)	32.11 ± 16.75	0.44 (.660)	92.31 ± 26.53	−3.66 (<.001)
No	46	122.16 ± 13.75		30.81 ± 14.16		110.12 ± 26.94	

Table 3

Correlation of resilience, burnout, and work-life balance of registered nurses in nursing homes (N = 155).

Variables	Age r (P)	Working years r (P)	Number of residents on last duty r (P)	Resilience r (P)	Burnout r (P)	Work-life balance r (P)
Age	1					
Working years as a RN	0.66 (<.001)	1				
Number of residents on last duty	0.09 (.277)	−0.01 (.952)	1			
Resilience	0.22 (.008)	0.19 (.018)	−0.55 (.586)	1		
Burnout	−0.12 (.138)	−0.03 (.713)	0.06 (.509)	−0.58 (<.001)	1	
Work-life balance	0.08 (.366)	0.01 (.948)	−0.11 (.172)	0.38 (<.001)	−0.45 (<.001)	1

Table 4

Factors influencing work-life balance of registered nurses in nursing homes (N = 155).

					95% CI	
Variables	B	SE	β	P	Lower	Upper
Work-related physical pain (ref: yes)	−16.68	4.65	−0.27	<.001	−25.89	−7.48
Resilience	0.36	0.17	0.20	.040	0.02	0.70
Burnout	−0.58	0.17	−0.33	.001	−0.91	−0.24

R^2 = 0.31; adjusted R^2 = 0.25; F = 5.49; P <.001.

CI = confidence interval.

In 2019, the number of active RNs in South Korea was 7.2 per 1000 population, below the average of 8.2 in 37 Organisation for Economic Cooperation and Development countries (US = 11.9, Japan = 11.8, Canada = 9.9).[31] With the decrease in total active RNs, the number of RNs in nursing homes is also decreasing.[9] Legislation is one reason why there are fewer RNs working in Korean nursing homes than in other countries. For example, in the US, federal staffing standards require at least one RN per shift in nursing homes, and RNs must work 8 hours a day for 7 days.[1] However, in South Korea, according to the Korean Enforcement Regulation of Welfare Act for the elderly, certificated nursing assistants are allowed to work in nursing homes instead of RNs. Therefore, RNs rarely work in nursing homes. In most cases, there is one certificated nursing assistant per 25 older adults.[32] Therefore, legislation is needed to designate RNs as essential personnel in South Korean nursing homes, as in other countries.

The current results indicate that burnout and physical pain are factors that reduce RNs' work-life balance. This supports previous research showing that burnout experienced by 672 nursing leaders in 29 hospitals was associated with low work-life balance.[33] Another study found that operating room nurses experiencing neck and back pain reported increased work-family conflict.[34] The work environment in South Korean nursing homes is poorer than that of acute hospitals.[35] RNs working in nursing homes in South Korea earn a relatively low salary compared with hospitals, there is no institutional standard for promotion, and it requires night and shift work. There are fewer welfare benefits for RNs because they are outnumbered by other occupations in nursing homes.[36] A poor work environment affects nurse burnout,[37] job turnover, and retention intention.[38]

Resilience is a factor with a positive effect on work-life balance, consistent with previous results that highly resilient service workers have greater work-life balance intention.[26] Moreover, resilience is an important factor in reducing burnout and turnover intention.[18] The buffering function of resilience is more pronounced in stressful situations and may have a more meaningful effect on the work-life balance and turnover intention of nurses in nursing homes.[39] As mentioned previously, nursing homes in South Korea have not yet established a good work

environment for RNs; thus, education programs and interventions for RNs are rarely implemented.[40] Currently, Korean nursing homes are subject to periodic evaluations; however, focusing on the external structure and process of nursing homes is insufficient for the evaluation of RNs' environment, and the care-related quality for residents.[35,41] Therefore, nursing homes should implement education programs and interventions to improve RNs' work environment, thereby reducing burnout and physical pain, and increasing resilience. This will contribute to improving the quality of life for residents.

This study has the following limitations. First, this study did not consider organizational factors (e.g., peer relationships and manager leadership) that influence the quality of life of RNs in nursing homes. Therefore, an integrated study is required in the future. In addition, this study did not show any relevance with variables identified as factors affecting work-life balance in previous studies, such as salary level and shift work. Therefore, there is a need for continuous research in the future. Nevertheless, the current results enable nursing home managers to manage RNs more effectively by considering individual factors. In addition, the findings are significant in that it contributes to a more thorough understanding of the work-life balance of nursing home RNs at a time when the number of older adults is rapidly increasing worldwide.

4.1. Applying research to occupational health practice

This study provides an understanding of the work of RNs working in nursing homes in South Korea. Nurses' personal resilience, occupational burnout, and work-related physical pain affect their work-life balance. In particular, nurses with physical pain may have difficulties in assisting residents with mobility. Therefore, an intervention is needed to increase resilience and reduce burnout and physical pain among nurses. The results provide a basis for a conceptualization of work-life balance not only benefiting nurses, but also the older adults they care for.

5. Conclusion

Burnout, work-related physical pain, and resilience affect the work-life balance of RNs in nursing homes. Therefore, it is imperative to implement programs that reduce burnout and work-related physical pain, as well as increase resilience. This will increase the retention of RNs in nursing homes and will ultimately improve the quality of life of the residents.

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Author contributions

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