Check for updates

International Wound Journal

WILEY

IWJ

ORIGINAL ARTICLE OPEN ACCESS

Does Nurses' Fatigue Level Affect Their Self-Efficacy in Pressure Injury Management? A Multi-Center Cross-Sectional Study

Elif Acar[1] | Tuba Sengul[2]

[1]Thoracic Surgery Service, Sisli Hamidiye Etfal Training and Research Hospital, Istanbul, Turkey | [2]Department of Fundamentals of Nursing, Koç University School of Nursing, Istanbul, Turkey

Correspondence: Tuba Sengul (tsengul@ku.edu.tr)

Received: 29 December 2024 | **Revised:** 26 May 2025 | **Accepted:** 29 May 2025

Funding: The authors received no specific funding for this work.

Keywords: exhaustion | nurses | occupational fatigue | pressure injury prevention | self-efficacy

ABSTRACT

To investigate the impact of nurses' occupational fatigue and exhaustion levels on their self-efficacy in managing pressure injuries. A descriptive cross-sectional study. The data were collected from 682 nurses employed at three institutions from May 15 to July 31, 2023. Occupational fatigue and exhaustion were assessed using the OFER scale, while self-efficacy in pressure injury (PI) management was evaluated using the PUM-SES. Correlation and multiple linear regression methods were used for data analysis. The STROBE checklist was used in the study. The study included 682 nurses, 85.3% female. The average age was 29.99 years, with a mean work experience of 7.52 years. Most participants (70.7%) worked in public training and research hospitals, with 327 nurses working mixed day-night shifts and 358 nurses managing 1–5 patients per shift. Fatigue levels, measured using the OFER, showed a mean score of 67.54 (22.89) for chronic fatigue. Self-efficacy in pressure ulcer management, assessed using the PUMSES, had a mean score of 48.39 (24.87). Higher PUMSES scores were found among nurses with certification in stoma and wound care ($p < 0.001$) and those who had attended relevant training ($p < 0.001$). Significant correlations were identified between OFER recovery scores, professional characteristics and PUMSES scores. This study revealed that nurses experience moderate-to-high levels of occupational fatigue and low levels of self-efficacy in PI management. Although no significant relationship was found between fatigue and self-efficacy, occupational factors such as poor sleep quality, long working hours and irregular shift patterns were associated with increased fatigue. In contrast, higher educational attainment, greater knowledge about PI and participation in professional training significantly enhanced nurses' self-efficacy in PI management. This study offers some early data on the possible role of occupational fatigue and PI preventive practices.

1 | Introduction

Exhaustion is generally defined as the 'depletion of psychological and physical energy' [1], while fatigue is described as the inability to perform at the desired level due to decreased mental and physical capacity [2]. Occupational fatigue and exhaustion among nurses negatively effect job performance and the quality of patient care, creating a severe threat to patient and worker safety [3]. This situation may reduce nurses' professional resilience, leading to a decline in the quality of healthcare services. Fatigue and associated psychological distress among nurses can compromise their resilience and impair their ability to deliver

This article is based on the findings of the author's master's thesis research.

This is an open access article under the terms of the Creative Commons Attribution-NonCommercial License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited and is not used for commercial purposes.

© 2025 The Author(s). *International Wound Journal* published by Medicalhelplines.com Inc and John Wiley & Sons Ltd.

Summary

- This study investigated the relationship between occupational fatigue and self-efficacy in pressure injury (PI) management among 682 nurses.
- Nurses experienced moderate-to-high levels of occupational fatigue and relatively low self-efficacy in PI prevention and care.
- No significant correlation was found between fatigue and self-efficacy scores.
- Factors such as poor sleep, long working hours, and irregular shifts were associated with increased fatigue.
- Nurses with higher education, wound care training, and certification had significantly greater self-efficacy in managing PIs.

consistent preventive care practices [3, 4], which can be indirectly critical in pressure injury (PI) prevention. Psychological burdens such as stress, exhaustion and emotional strain experienced during wound care responsibilities have been linked to reduced care quality and increased risks of PI development [5]. PI refers to localised tissue damage occurring in the skin and underlying soft tissues over bony prominences due to various factors such as pressure, friction and shear [6]. PI is a global health problem that threatens patient safety, negatively effects the quality of life, prolongs hospital stays and increases healthcare costs [7].

Nurses are frequently confronted with fatigue and exhaustion due to factors such as shift work, sleep problems, stressful work environments, unfavourable working conditions and excessive workloads [8–10]. Fatigue is a severe condition with physical and mental effects on nurses, negatively impacting healthcare quality and threatening staff and patient safety [3, 11]. Occupational fatigue leads to decreased care quality, poor patient outcomes, reduced employee satisfaction and increased nurse turnover rates, all of which drive up healthcare costs [3, 4]. In this context, further research on occupational fatigue and determining necessary interventions is critical to preventing fatigue and enhancing quality in healthcare institutions [12].

PIs are a significant issue frequently encountered in clinical care settings [13], and their prevention and proper management enhance patient quality of life while reducing care costs, hospital stay durations and mortality risk [14, 15]. PIs are also a key quality indicator for all healthcare organisations [16–19] and are associated with inadequate nursing care [15, 20]. Therefore, nurses must have sufficient knowledge of PI aetiology, risk factors and preventive interventions. Additionally, assessing and evaluating nurses' self-efficacy in PI management is essential for patient safety and care quality [20, 21].

In addition to well-known factors such as nurses' knowledge levels and working conditions, less-known factors like occupational fatigue may also play a role in developing PIs. The literature frequently emphasises that nurses with insufficient knowledge levels are inadequate in PI management [22, 23]. While there are numerous studies measuring nurses' levels of occupational fatigue [2, 12, 24, 25], research evaluating both levels of occupational fatigue concerning self-efficacy in PI management is limited. This study aims to contribute to the literature by examining the relationship between nurses' levels of occupational fatigue and their self-efficacy in PI management. Additionally, it aims to raise awareness and provide valuable data to nurse managers and healthcare authorities regarding improving nurses' working conditions and PI management.

2 | The Study

2.1 | Aim

This study was designed to examine the impact of nurses' occupational fatigue and exhaustion levels on their self-efficacy in managing PIs.

2.2 | Research Questions

- What are the Occupational Fatigue Exhaustion Recovery Scale scores among nurses?
- What are the Pressure Ulcer Management Self-Efficacy scale scores among nurses?
- Is there a relationship between the average scores of the occupational fatigue exhaustion recovery scale and the average scores of the pressure ulcer management self-efficacy scale among nurses?

3 | Methods

3.1 | Design

This research is a descriptive cross-sectional study with a correlational design. The STROBE guidelines were utilised to report this study.

3.2 | Study Setting and Sampling

The data for the study were collected between May 15 and July 31, 2023, from 682 nurses working in a training and research hospital, a private university hospital and stoma and wound care units in Istanbul. A power analysis was conducted to determine the sample size. Based on percentage measurement values from the literature review related to the methods under study, with a 0.3 (Cohen) effect size, 95% power and a 0.05 margin of error, the sample size was calculated as $n = 680$ using the G*Power program. As a result, the study was conducted with 682 nurses, which meets the projected sample size.

3.3 | Inclusion and Exclusion Criteria

Nurses who had at least 1 year of professional nursing experience and were willing to participate were included in the study. Nurses with less than 1 year of total professional nursing experience were excluded. A total of 682 nurses who met these criteria participated in the study.

1742481x, 2025, 8, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/iwj.70708 by Koc University, Wiley Online Library on [29/12/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

3.4 | Data Source

Data in the study were collected through three different survey instruments:

3.4.1 | Participant Demographic Characteristics Form

This form consists of 22 questions about the nurses' sociodemographic and professional information, sleep quality and status regarding receiving education on PIs. Additionally, Nurses' self-perceived knowledge about pressure injuries was assessed using a Visual Analog Scale (VAS) ranging from 0 to 10, where 0 represented 'no knowledge at all' and 10 indicated 'very high level of knowledge'.

3.4.2 | Occupational Fatigue Exhaustion Recovery Scale

This scale, developed by Winwood et al. [26], was adapted into Turkish and validated by Havlioglu et al. [27]. The scale consists of three subscales: chronic fatigue (5 items), acute fatigue (5 items) and recovery (5 items). The scale contains 15 items, each rated on a 0–6 Likert scale (0 = Strongly Disagree, 6 = Strongly Agree). A score between 0 and 100 is calculated for each subscale. Higher scores in the chronic and acute fatigue subscales indicate increased occupational fatigue, while higher scores in the recovery subscale indicate better recovery between shifts. Fatigue levels are categorised as follows: 0–25 indicates low fatigue, 25–50 indicates moderate-low fatigue, 50–75 indicates moderate-high fatigue and 75–100 indicates high fatigue. The original scale's Cronbach's alpha coefficient was 0.93 for chronic fatigue, 0.82 for acute fatigue and 0.75 for recovery [26]. In this study, Cronbach's alpha was 0.87 for chronic fatigue, 0.53 for acute fatigue and 0.70 for recovery.

3.4.3 | Pressure Ulcer Management Self-Efficacy Scale

This scale, developed by Dellafiore et al. [16], was adapted into Turkish and validated by Utli and Dinc [15]. The scale consists of four subscales: assessment (2 items), planning (2 items), supervision (2 items) and decision-making (4 items). The scale includes 10 items, each rated on a 1–5 Likert scale (1 = completely unable, 5 = completely capable). The total score range is 10–50, with higher scores indicating higher levels of self-efficacy. The original scale's Cronbach's alpha coefficient was 0.965 [16], which was found to be 0.96 in this study.

3.5 | Data Collection and Data Analysis

The surveys were presented to licensed registered nurses who voluntarily participated in the study in online and written formats. Online surveys were sent to participants' email addresses via the Qualtrics platform. The data was analysed using the NCSS 2007 (Kaysville, Utah, USA) program. Descriptive statistics were summarised with mean, standard deviation, median, minimum, maximum, frequency and percentage values. The distribution of the data was evaluated using the Shapiro–Wilk test. For quantitative data that did not show a normal distribution, the Mann–Whitney U test was used to compare two groups, and the Kruskal–Wallis test was applied for comparisons between three or more groups. Spearman's correlation and multiple linear regression analyses were performed to determine the relationships between quantitative variables.

3.6 | Ethical Considerations

This study complied with the ethical standards outlined in the Declaration of Helsinki. Ethical approval was obtained from the Koç University Committee on Human Research (Decision No: 2023.106.IRB3.050, dated March 23, 2023). Before data collection, written consent was secured from the participating hospitals, and institutional permissions were granted to conduct the research in the respective facilities. Nurses who participated in the study were informed about the research's objectives, procedures, potential risks and benefits. Their participation was voluntary, and they could withdraw at any point without any negative consequences. All data collected from the nurses were anonymised and kept confidential to ensure their privacy. The online surveys were distributed through secure emails using the Qualtrics platform, and written consent was obtained electronically from participants before they began the survey. The study adhered to all relevant data protection laws and regulations, including the General Data Protection Regulation (GDPR).

4 | Results

The sociodemographic characteristics of the nurses included in the study are given in Table 1. Of the participants, 85.3% ($n = 582$) were female, averaging 29.99 ± 6.63 years. 76.2% ($n = 520$) of the nurses held a bachelor's degree, and 70.7% ($n = 482$) were employed in public hospitals. Additionally, 90.2% ($n = 615$) of the participants work as nurses. The average total duration of employment in the nursing profession was 7.52 ± 6.86 years, with an average weekly working time of 47.52 ± 8.89 h. The nurses' average daily sleep duration was 6.35 ± 1.25 h, and the average time to fall asleep was 30.74 ± 27.31 min. Moreover, 42% of the nurses rated their sleep quality as bad (Table 1).

The professional characteristics of the nurses included in the study are given in Table 2. Of the nurses, 26.6% ($n = 182$) work in surgical inpatient units, 18.2% ($n = 124$) in internal medicine inpatient units and 13.5% ($n = 92$) in intensive care units. When examining the number of patients they provide daily care, 52.5% attended to 1–5 patients, while 19.8% cared for 6–10 patients. Additionally, 47.9% of the nurses work in mixed day-night shifts, and it was found that 72.7% chose their profession voluntarily. Furthermore, 70.4% of the nurses responded 'No' to whether they could set aside time for themselves (Table 2).

The findings regarding nurses' knowledge levels about PIs are presented in Table 3. The knowledge level of nurses regarding PIs ranges from 0 to 10, with an average of 5.97 ± 2.37. Nurses who have postgraduate education, hold a stoma and wound care nursing certification, have attended chronic wound care courses, have participated in in-service training related to PIs and their prevention, and who keep up with developments,

1742481x, 2025, 8, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/iwj.70708 by Koc University, Wiley Online Library on [29/12/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 1 | Demographic characteristics of nurses ($n = 682$).

Descriptive characteristics	*n*	%
Gender		
Female	582	85.3
Male	100	14.7
Education		
Highschool	58	8.5
Graduate	520	76.2
Postgraduate	104	15.2
Workplace		
Public hospital	482	70.7
Private hospital	200	29.3
Position		
Nurse	615	90.2
Nurse manager	67	9.8
Sleep quality		
Good	120	17.7
Normal	275	40.3
Bad	287	42
	Mean (SD)	**Min–max**
Age	29.99 (6.63)	21–56
Work experience (year)	7.52 (6.86)	1–38
Weekly working hours	47.52 (8.89)	24–72
Daily sleep duration (hour)	6.35 (1.25)	3–12
Sleep onset latency (minute)	30.74 (27.31)	0–180

TABLE 2 | Professional characteristics of nurses ($n = 682$).

Descriptive characteristics	*n*	%
Department		
Surgical clinics	182	26.6
Internal medicine clinics	124	18.2
Intensive care unit	92	13.5
Outpatient clinics and treatment units	91	13.3
Emergency department	59	8.7
Operating room	55	8.1
Paediatric clinics	43	6.3
Wound care and stoma unit	36	5.3
Number of patients receiving daily care		
1–5	358	52.5
6–10	135	19.8
11–15	64	9.4
16 and above	125	18.3
Work shift		
Day-night mixed*	327	47.9
Day shift only	207	30.4
24-h shift	148	21.7
Choosing his/her profession voluntarily		
Yes	496	72.7
No	186	27.3
Setting aside time for himself/herself		
Yes	202	29.6
No	480	70.4

*Morning = 08:00 A.M-04:00 P.M, Night = 04:00 P.M-08:00 A.M (Kamu Hastanesi). Morning = 08:00 A.M-08:00 PM, Night = 08:00 P.M-08:00 A.M (Vakıf Üniversitesi Hastanesi).

courses and conferences have demonstrated higher knowledge levels about PIs ($p < 0.05$) (Table 3).

The internal consistency of the OFER subscales in this study was as follows: chronic fatigue ($\alpha = 0.87$), acute fatigue ($\alpha = 0.53$) and recovery ($\alpha = 0.70$). For the Pressure Ulcer Management Self-Efficacy Scale (PUM-SES), the total scale demonstrated high internal consistency ($\alpha = 0.96$), consistent with previous validation studies.

The mean scores for the subscales and total scale of the OFER and PUM-SES are presented in Table 4. The mean score for chronic fatigue, one of the OFER subscales, was 67.54 ± 22.89, while the mean score for acute fatigue was 60.89 ± 12.58, and the mean recovery score was 53.84 ± 11.60. Regarding the PUM-SES subscales, the mean score for evaluation was 43.18 ± 27.65, for planning 50.60 ± 28.05, for supervision 43.77 ± 27.82 and for decision-making 52.20 ± 25.75. The overall self-efficacy mean score was 48.39 ± 24.87 (Table 4).

A negative and very weak significant correlation was found between age and chronic fatigue ($r = -0.119$, $p < 0.01$). Similarly, a negative and very weak significant correlation was observed between age and acute fatigue ($r = -0.154$, $p < 0.01$). A positive and very weak significant correlation was detected between the average weekly working hours and chronic fatigue ($r = 0.101$, $p < 0.01$). A negative and very weak significant correlation was found between total years of professional experience and chronic fatigue ($r = -0.101$, $p < 0.01$). In contrast, a positive and very weak significant correlation was observed between total years of experience and evaluation ($r = 0.100$, $p < 0.01$) and supervision ($r = 0.079$, $p < 0.05$). Negative and very weak significant correlations were found between daily sleep duration and both chronic fatigue ($r = -0.131$, $p < 0.01$) and recovery ($r = -0.090$, $p < 0.05$). Additionally, a positive and very weak significant correlation was found between sleep onset latency and chronic fatigue ($r = 0.145$, $p < 0.01$). A positive and moderate significant correlation was found between chronic and acute fatigue ($r = 0.505$, $p < 0.01$). However, no statistically significant correlations were found between chronic and acute fatigue with evaluation, planning, supervision, decision-making, or PI management

1742481x, 2025, 8, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/iwj.70708 by Koc University, Wiley Online Library on [29/12/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 3 | Findings on nurses' knowledge levels about pressure injuries ($n = 682$).

Descriptive characteristics	Mean (SD)	*p*
Education		
Highschool	5.50 (2.26)	0.001**
Graduate	5.85 (2.34)	
Postgraduate	6.89 (2.42)	
Certified in stoma and wound care nursing		
Yes	9.17 (1.00)	0.001**
No	5.79 (2.30)	
Participation status in chronic wound care course		
Yes	7.47 (2.49)	0.001**
No	5.67 (2.23)	
Participation in-service training on PI and prevention		
Yes	7.11 (1.83)	0.001**
No	4.75 (2.28)	
Status of following developments related to PI and prevention		
Yes	7.08 (1.86)	0.001**
No	4.87 (2.31)	
Participation in courses and conferences related to PI		
Yes	7.69 (1.95)	0.001**
No	5.54 (2.27)	
	Mean (SD)	**Min-Max**
Level of knowledge about PI	5.97 (2.37)	0–10

**$p < 0.01$.

TABLE 4 | Findings on the occupational fatigue exhaustion recovery scale and the pressure ulcer management self-efficacy scale ($n = 682$).

	Mean (SD)	Min-Max
OFER		
Chronic fatigue	67.54 (22.89)	3.33–100
Acute fatigue	60.89 (12.58)	16.67–100
Recovery	53.84 (11.60)	10–100
PUM-SES		
Assessment	43.18 (27.65)	0–100
Planning	50.60 (28.05)	0–100
Supervision	43.77 (27.82)	0–100
Decision-making	52.20 (25.75)	0–100
sPU management self-efficacy	48.39 (24.87)	0–100

Abbreviations: OFER, occupational fatigue exhaustion recovery scale; PUM-SES, pressure ulcer management self-efficacy scale.

self-efficacy ($p > 0.05$). A positive and strong significant correlation was found between the knowledge level about PI and PI management self-efficacy ($p < 0.01$). Additionally, significant positive correlations were identified between the knowledge level about pressure injuries and the subscales of evaluation, planning, supervision and decision-making ($p < 0.01$). Strong positive correlations were also detected between PI management self-efficacy scores and the subscales of evaluation, planning, supervision and decision-making ($p < 0.01$) (Table 5).

On examining Table 6, the multiple linear regression analysis conducted to determine the effect of independent variables on PI management self-efficacy was statistically significant ($F = 33.674$, $p < 0.001$). A positive and moderately significant relationship was observed between the independent variables and overall self-efficacy ($R = 0.629$, $p < 0.001$). The variables in the model explain 39.6% of the variance in overall self-efficacy ($p < 0.01$). Variables such as postgraduate education, knowledge level about PI, participation in in-service training related to PI and its prevention, following developments related to PI and its prevention, and attending courses and conferences on PI positively affected overall self-efficacy ($p < 0.001$). In conclusion, nurses with postgraduate education, higher knowledge levels about PI, who received in-service training, and who followed developments, courses and conferences related to PI and its prevention had higher overall self-efficacy scores than others (Table 6).

5 | Discussion

This study comprehensively examined the effects of nurses' occupational fatigue and exhaustion levels on managing PIs. The study was conducted in Istanbul, Turkey, providing insights into nurses' experiences within the Turkish healthcare system. This research included 682 nurses, of whom 85.3% were female, 76.2% held a bachelor's degree and 70.7% worked in public hospitals. The average age of the nurses was 29.99 ± 6.63 years, and the average total work experience in the profession was 7.52 ± 6.86 years, with an average weekly working hours of 47.52 ± 8.89 h. Consistent with the findings in the literature, the number of years of experience and extended working hours suggest that nurses are dealing with a significant workload [28, 29].

Regarding the subjective assessment of sleep quality, it was found that 42% of participants had poor sleep quality, with an average daily sleep duration of 6.35 ± 1.25 h, and the average sleep onset latency was calculated as 30.74 ± 27.31 min. These findings indicate that nurses' sleep quality is negatively affected by long working hours and high workloads, which may significantly impact their professional performance [29, 30]. Sleep quality is directly related to fatigue levels, affecting nurses' decision-making processes and clinical skills [31, 32]. Occupational fatigue can reduce nurses' perceived ability to effectively perform clinical tasks, particularly those requiring vigilance and consistent preventive practices, lowering their self-efficacy [3]. Decreased self-efficacy has been associated with reduced adherence to prevention protocols [3]. However, there is insufficient evidence in the literature directly linking nurses' self-efficacy in PI management to

1742481x, 2025, 8, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/iwj.70708 by Koc University, Wiley Online Library on [29/12/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 5 | Correlation analysis.

		1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	*r*	1													
	p														
2. Work experience	*r*	0.871**	1												
	p	0.000													
3. Weekly working hours	*r*	−0.329**	−0.301**	1											
	p	0.000	0.000												
4. Daily sleep duration	*r*	0.025	0.000	−0.142**	1										
	p	0.511	0.993	0.000											
5. Sleep onset latency	*r*	−0.044	−0.053	0.052	−0.109**	1									
	p	0.257	0.171	0.178	0.004										
6. Level of knowledge about PI	*r*	0.192**	0.222**	−0.02	−0.004	−0.088*	1								
	p	0.000	0.000	0.606	0.909	0.021									
7. Chronic fatigue	*r*	−0.119**	−0.101**	0.101**	−0.131**	0.145**	−0.117**	1							
	p	0.002	0.008	0.009	0.001	0.000	0.002								
8. Acute fatigue	*r*	−0.154**	−0.170**	0.014	0.007	0.073	−0.113**	0.505**	1						
	p	0.000	0	0.723	0.859	0.057	0.003	0.000							
9. Recovery	*r*	−0.033	−0.036	0	−0.090*	−0.003	0.006	0.302**	0.366**	1					
	p	0.388	0.353	0.925	0.018	0.932	0.884	0.000	0.000						
10. Assessment	*r*	0.025	0.100**	0.033	0	−0.02	0.606**	−0.03	−0.034	0.012	1				
	p	0.512	0.009	0.385	0.249	0.605	0.000	0.431	0.376	0.746					
11. Planning	*r*	0.006	0.054	0.003	−0.034	0	0.544**	−0.034	−0.009	0.063	0.735**	1			
	p	0.876	0.158	0.933	0.376	0.268	0.000	0.372	0.817	0.098	0.000				
12. Supervision	*r*	0.057	0.079*	−0.009	0.004	−0.029	0.526**	−0.027	0.021	0.046	0.689**	0.799**	1		
	p	0.135	0.038	0.810	0.924	0.456	0	0.478	0.584	0.228	0.000	0.000			
13. Decision making	*r*	0.014	0.048	0.023	−0.038	−0.038	0.527**	0	−0.011	0.021	0.711**	0.830**	0.847**	1	
	p	0.720	0.214	0.556	0.323	0.318	0.000	0.087	0.772	0.578	0.000	0.000	0.000		
14. PI management self-efficiacy	*r*	0.027	0.072	0.013	−0.035	−0.04	0.595**	−0.047	0	0.034	0.832**	0.918**	0.911**	0.955**	1
	p	0.485	0.059	0.742	0.368	0.292	0.000	0.216	0.852	0.378	0.000	0.000	0.000	0.000	

Note: Spearman's. *$p < 0.05$; **$p < 0.01$.

1742481x, 2025, 8, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/iwj.70708 by Koc University, Wiley Online Library on [29/12/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

TABLE 6 | Multiple linear regression analysis.

Model 1	Univariable					Multivariable				
Variables	**B**	**SE**	**Standard (B)**	***t***	***p***	**B**	**SE**	**Standard (B)**	***t***	***p***
Level of knowledge about PI	6.043	0.329	0.576	18.387	0.001**	4.337	0.402	0.414	10.788	0.001**
Certification status	30.585	4.097	0.275	7.464	0.001**	−0.471	5.101	−0.004	−0.092	0.926
Receiving in-service training on PI and prevention	18.826	1.765	0.379	10.666	0.001**	3.666	1.789	0.074	2.05	0.001**
Following developments related to PI and prevention	21.039	1.727	0.423	12.184	0.001**	6.217	1.852	0.125	3.357	0.001**
Participation in courses and conferences related to PI	22.999	2.209	0.371	10.411	0.001**	6.514	2.497	0.105	2.609	0.001**
Participation in chronic wound care course	17.839	2.470	0.267	7.222	0.001**	0.978	2.551	0.015	0.383	0.702
Education										
Graduate	−4.944	2.231	−0.085	−2.216	0.001**	−2.066	2.73	−0.035	−0.757	0.449
Postgraduate	8.110	2.633	0.117	3.081	0.001**	−2.796	3.312	−0.04	−0.844	0.399
Position										
Nurse	−16.684	2.348	−0.263	−7.106	0.001**	−7.579	4.002	−0.119	−1.894	0.059
Nurse manager	7.040	3.191	0.084	2.206	0.001**	−4.897	4.495	−0.059	−1.089	0.276
Wound care and stoma nurse	32.340	4.137	0.287	7.817	0.001**	3.688	6.182	0.033	0.597	0.551
Work shift-day shift only	6.143	2.059	0.114	2.983	0.001**	−2.952	1.913	−0.055	−1.543	0.123

Note: $F = 33.674$; $R = 0.629$; $R^2 = 0.396$.
**$p < 0.01$.
*$p < 0.05$.

1742481x, 2025, 8, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/iwj.70708 by Koc University, Wiley Online Library on [29/12/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

factors such as fatigue and sleep quality. This limitation presents challenges in discussing the related findings of this study. Nevertheless, the observed association may suggest an increased risk of PI development. The findings of this study indicate that nurses experience moderate to high levels of chronic and acute fatigue, with recovery levels between shifts slightly above average. The literature reports various findings regarding the fatigue levels of nurses. Some studies have reported that chronic fatigue levels are at a moderate to low level [10, 33], while others have reported moderate to high or high levels [12, 34, 35]. Similarly, acute fatigue levels also vary; some studies have found them to be at a moderate to low level [36], while others have reported moderate to high or high levels [9, 25]. The results of this study are consistent with findings that indicate moderate to high levels of chronic and acute fatigue.

The recovery levels between shifts are generally reported to be at medium-high levels in the literature [8], and this study aligns with these findings. Additionally, it is believed that shift hours and high workloads may lead to increased fatigue, which disrupts sleep patterns, creating a cycle. This cycle can become a complex equation with interrelated factors and unpredictable outcomes. A good quality of sleep has been reported to prevent errors [32], and it is anticipated that this may also be a compelling factor in preventing PIs.

This study suggests that the high levels of chronic and acute fatigue experienced by nurses may be related to factors such as long working hours, inability to allocate time for themselves, night shifts, inadequate rest, managing a high number of patients and poor sleep quality. A positive relationship between chronic and acute fatigue has been identified [36, 37], which aligns with similar studies in the literature. This study found no significant correlation between chronic and acute fatigue levels and self-efficacy in PI management ($p > 0.05$). This lack of association was unexpected and may indicate that while nurses perceive high levels of fatigue, they may compartmentalise this experience and maintain their professional self-confidence in performing PI-related tasks. This finding shows that fatigue does not directly affect nurses' self-efficacy in PI management. However, the absence of a relationship between chronic and acute fatigue levels and self-efficacy in PI management may be attributed to the lack of consistency among the scale items and sub-dimensions. Another possible explanation is that self-efficacy, as a cognitive and motivational construct, may be less sensitive to transient states like fatigue and more influenced by long-term professional development factors. Additionally, the findings suggest that educational attainment, clinical experience and specialised wound care training may act as protective factors that help nurses maintain self-efficacy in PI management, despite high levels of occupational fatigue. On the other hand, a very high positive correlation was found between the sub-dimensions of the PUM-SES and the total self-efficacy scores. This indicates that nurses who scored high in sub-dimensions of the scale, such as assessment, planning, supervision and decision-making skills, also demonstrated high levels of overall self-efficacy in PI management.

When the mean subscale scores of the PUM-SES used in this study were evaluated, it was found that the evaluation score was below average, the planning score was slightly above average, the supervision score was below average and the decision-making score was slightly above average. The total self-efficacy score of the scale was determined to be below average (Table 3). Like Dellafiore et al. [16] and Utli & Dinc [15], the decision-making subscale was the highest, followed by the planning, supervision and evaluation subscales. In this context, the nurses who participated in this study demonstrated higher decision-making self-efficacy than in the other subscales. It can be suggested that the professional experience of nurses and their accumulated knowledge in solving complex situations encountered in the clinical setting have contributed to this result. The findings indicate that the emphasis nurses place on problem-solving and collaborative decision-making processes in the field generally has a negative impact on their self-efficacy. An important finding from this study highlights the need for targeted education for nurses. Specific topics requiring further education include assessment, documentation and understanding when to involve physicians in patient care [38]. Addressing these areas may enhance nurses' decision-making abilities and overall self-efficacy in PI management. In the literature, studies are showing that fatigue levels increase [2, 39] or decrease [36] with age, as well as studies indicating that age does not affect occupational fatigue [12, 33]. This study found a weak negative correlation between age and total years of service and chronic and acute fatigue. This finding aligns with the contradictions in the literature regarding the lack of a clear relationship between age, professional experience and fatigue. Differences in age-related fatigue levels may be due to individual factors (physical health, lifestyle, personal resilience) and institutional factors (work environment, shift schedules, support systems). Specifically, it can be argued that as age and experience increase, nurses may experience lower fatigue levels due to the expertise they gain in work planning, stress management and professional skills. This study presents findings that align with those of Kopuz and Karaca [20], who found that knowledge levels regarding PI increase with age. This can be explained by accumulating knowledge through experience and its translation into more effective preventive strategies in clinical practice. However, it is essential to replicate these findings with larger and more homogenous sample groups to fully understand the impact of age on occupational fatigue and exhaustion.

The study was conducted in Istanbul, Turkey. Compared to the US healthcare system, with a clear distinction between ICU/CCU nurses and floor nurses, such divisions may be less pronounced in Turkey. When comparing the findings of this study with those of the United States (US) healthcare system, notable differences emerge [40]. The US healthcare system also differentiates between acute care hospitals and long-term care (LTC) facilities. LTC often experiences chronic understaffing, contributing significantly to nurse fatigue and morale issues [41]. Nursing shortages are prevalent in the US hospital and LTC settings, intensifying workload pressures [42]. Another critical factor affecting nurse fatigue and morale in the US is high staff turnover, which remains a persistent issue [43]. While this study did not specifically address staff turnover rates in Turkey, future research could explore whether similar challenges exist. Incorporating an international perspective helps contextualise the findings and highlights the global relevance of nurse fatigue and its implications for patient care.

1742481x, 2025, 8, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/iwj.70708 by Koc University, Wiley Online Library on [29/12/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

A positive and significant high-level relationship was found between nurses' knowledge levels regarding PI and their self-efficacy in PI management. This indicates that as nurses' knowledge levels increase, their self-efficacy also improves. The literature has identified that nurses [18, 19, 22, 44] and nursing students have low knowledge levels regarding PI [13, 45, 46]. This finding underscores education's critical role in enhancing nurses' self-efficacy in PI management. It has been found that the level of knowledge regarding PIs, in-service training on PI prevention, staying updated on developments, and participation in courses and conferences positively and significantly impact self-efficacy in managing PIs. Consequently, nurses who possess a high level of knowledge regarding PIs, follow recent developments and engage in professional education have shown higher levels of self-efficacy in PI management. In this context, increasing opportunities for nurses' education and professional development may play a crucial role in enhancing the effectiveness and quality of PI management.

5.1 | Strengths and Limitations

One of the significant strengths of this study is that the data were collected from three different institutions (a training and research hospital, a foundation university hospital and stoma and wound care units) based on a large sample size. This diversity provides a more comprehensive perspective on the findings for nurses in different clinical settings. Additionally, the study addresses a significant gap in the literature by examining the relationships between nurses' occupational fatigue and exhaustion levels and their self-efficacy in PI management. The results indicate that knowledge level and self-efficacy in PI management and other occupational factors are critical in preventing PIs. The main limitation of this study is the unclear significant impact of nurses' high levels of occupational fatigue on their self-efficacy in PI management. This suggests other factors, particularly the differences in the items and subscales of the two scales, which may not fully capture the relationship between fatigue, exhaustion and self-efficacy. Moreover, the absence of a significant association between occupational fatigue and self-efficacy should also be interpreted with caution, as it may reflect limitations inherent to self-report instruments or the complexity of capturing the indirect effects of fatigue on clinical confidence. Therefore, it is recommended that the differing findings be carefully interpreted and supported by more comprehensive studies with broader scopes.

The study's results offer a different perspective on preventing PIs by considering nurses' occupational fatigue exhaustion levels in clinical settings. The findings may contribute to developing strategies that enhance patient safety and improve the quality of care nurses provide. The data provide important insights for healthcare administrators and policymakers, highlighting the need to improve nurses' working conditions and boost their self-efficacy. In this context, knowledge regarding PIs and related education, courses and conferences emerges as a crucial elements that positively impact nurses' self-efficacy in PI management. However, as the sample of this study is limited to specific hospitals, the generalisability of the results may be constrained. Therefore, further research in various healthcare institutions and working conditions is required.

6 | Conclusion

This study has shown that nurses experience moderate-to-high levels of occupational fatigue, primarily associated with prolonged working hours, intensive shifts and poor sleep quality. Although no direct relationship was found between occupational fatigue and nurses' self-efficacy in PI management, this study offers some early data on the possible role of occupational fatigue and PI preventive practices. Nurses' self-efficacy appears more strongly associated with PI-related knowledge, wound-care certification and participation in continuous professional education. These findings suggest that supporting ongoing education in PI care and improving working conditions may be beneficial. However, given the cross-sectional nature of this study, these conclusions should be interpreted with caution, and further research is needed to explore causal pathways and intervention strategies.

Acknowledgements

The authors thank the nurses who took part in the study.

Ethics Statement

The written permission was obtained from the institution where the study was conducted and Koç University Ethics Committee before the data collection process (No: 2023.106.IRB3.050).

Conflicts of Interest

The authors declare no conflicts of interest.

Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

References

1. E. Gulay, *Burnout Syndrome and Its Relationship With Organizational Climate: A Study on the 27th Term Members of Parliament (Master's thesis)* (Adıyaman University Institute of Social Sciences, 2019).

2. T. Ortabag, S. Avci, S. Ozdemir, E. Donmez, S. Havlioglu, and E. Acikgoz, "The Relationship Between Occupational Fatigue and Perceived Stress Level Among Nurses During the Covid-19 Pandemic: A Cross-Sectional Study From Turkey," *Karya Journal of Health Science* 3, no. 3 (2022): 331–337, https://doi.org/10.52831/kjhs.1186619.

3. J. Gifkins, A. Johnston, R. Loudoun, and A. Troth, "Fatigue and Recovery in Shiftworking Nurses: A Scoping Literature Review," *International Journal of Nursing Studies* 112 (2020): 103710, https://doi.org/10.1016/j.ijnurstu.2020.103710.

4. P. Gander, K. O'Keeffe, E. Santos-Fernandez, A. Huntington, L. Walker, and J. Willis, "Development and Evaluation of a Matrix for Assessing Fatigue-Related Risk, Derived From a National Survey of Nurses' Work Patterns," *International Journal of Nursing Studies* 112 (2020): 103573, https://doi.org/10.1016/j.ijnurstu.2020.103573.

5. L. Qian, S. Yan, S. T. Ting, Z. M. Han, and T. Qi, "Complications and Psychological Impact of Pressure Ulcers on Patients and Caregivers," *International Wound Journal* 21, no. 4 (2024): e14836, https://doi.org/10.1111/iwj.14836.

6. National Pressure Injury Advisory Panel, "Prevention and Treatment of Pressure Ulcers/Injuries: Clinical Practice Guideline," (2019), https://npiap.com/page/Guidelines.

1742481x, 2025, 8, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/iwj.70708 by Koc University, Wiley Online Library on [29/12/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

7. E. A. Ayello and R. G. Sibbald, "Pressure Injuries: Nursing-Sensitive Indicator or Team-and Systems-Sensitive Indicator?," *Advances in Skin & Wound Care* 32, no. 5 (2019): 199–200, https://doi.org/10.1097/01.ASW.0000557754.10070.88.

8. S. A. Alsayed, E. A. Abou Hashish, and F. Alshammari, "Occupational Fatigue and Associated Factors Among Saudi Nurses Working 8-Hour Shifts at Public Hospitals," *SAGE Open Nursing* 8 (2022): 237796082210781, https://doi.org/10.1177/23779608221078158.

9. M. Caboral-Stevens, D. Raymond, 3rd, and L. S. Evangelista, "Well-Being, Occupational Fatigue, and Sleep Quality Among Filipino Nurses Working During COVID-19," *Asian Journal of Nursing Education and Research* 13, no. 1 (2023): 67–72, https://doi.org/10.52711/2349-2996.2023.00016.

10. A. Farag, L. D. Scott, Y. Perkhounkova, S. Saeidzadeh, and M. Hein, "A Human Factors Approach to Evaluate Predicators of Acute Care Nurse Occupational Fatigue," *Applied Ergonomics* 100 (2022): 103647, https://doi.org/10.1016/j.apergo.2021.103647.

11. J. Jun, M. M. Ojemeni, R. Kalamani, J. Tong, and M. L. Crecelius, "Relationship Between Nurse Burnout, Patient and Organizational Outcomes: Systematic Review," *International Journal of Nursing Studies* 119 (2021): 103933, https://doi.org/10.1016/j.ijnurstu.2021.103933.

12. S. Havlioglu, F. Ersin, and S. Kahraman, "Determination of Factors Affecting Occupational Fatigue in Shift Working Nurses," *Gevher Nesibe Journal of Medical & Health Sciences* 5, no. 9 (2020): 15–20, https://doi.org/10.46648/gnj.125.

13. T. Sengul and N. Kaya, "Unlocking Excellence: Improving Nursing Students' Knowledge of Pressure Injury Prevention Through an Escape Room Experience," *Advances in Skin & Wound Care* 37, no. 11 and 12 (2024): 1–8, https://doi.org/10.1097/ASW.0000000000000228.

14. T. Sengul and A. Gul, "Pressure Injury in the Perioperative Period During COVID-19 Pandemic: Incidence and Patient-Related Risk Factors in a Hospital in Turkey," *Journal of Tissue Viability* 31, no. 4 (2022): 714–717, https://doi.org/10.1016/j.jtv.2022.08.008.

15. H. Utli and M. Dinc, "The Validity and Reliability of Turkish Version of the Pressure Ulcer Management Self-Efficacy Scale for Nurses," *Journal of Inonu University Health Services Vocational School* 10, no. 3 (2022): 948–964, https://doi.org/10.33715/inonusaglik.1063082.

16. F. Dellafiore, C. Arrigoni, G. Ghizzardi, et al., "Development and Validation of the Pressure Ulcer Management Self-Efficacy Scale for Nurses," *Journal of Clinical Nursing* 28, no. 17–18 (2019): 3177–3188, https://doi.org/10.1111/jocn.14875.

17. P. Fulbrook, P. Lawrence, and S. Miles, "Australian Nurses' Knowledge of Pressure Injury Prevention and Management: A Cross-Sectional Survey," *Journal of Wound, Ostomy and Continence Nursing: Official Publication of the Wound, Ostomy and Continence Nurses Society* 46, no. 2 (2019): 106–112, https://doi.org/10.1097/WON.0000000000000508.

18. T. Sengul, N. Shoqirat, C. Singh, D. Mahasneh, and A. Karadag, "A Qualitative Evaluation of Online Active Learning Modalities in the Chronic Wound Management Lecture of Nursing Students' Experiences in Turkey," *Journal of Tissue Viability* 31, no. 4 (2022): 746–750, https://doi.org/10.1016/j.jtv.2022.07.014.

19. T. Sengul, A. Gul, D. Yilmaz, and T. Gokduman, "Translation and Validation of the ELPO for Turkish Population: Risk Assessment Scale for the Development of Pressure Injuries due to Surgical Positioning," *Journal of Tissue Viability* 31, no. 2 (2022): 358–364, https://doi.org/10.1016/j.jtv.2022.01.011.

20. E. Kopuz and A. Karaca, "Evaluation of Nurses' Knowledge About Risk Monitoring and Risk Prevention for Pressure Ulcers," *Clinical and Experimental Health Sciences* 9, no. 2 (2019): 157–165, https://doi.org/10.33808/clinexphealthsci.563897.

21. O. Uzun and U. Kaya, "Determination of Pressure Sore Risk Factors in Inpatients: A University Hospital Study," *Medical Journal of Western Black Sea* 4, no. 3 (2020): 158–166, https://doi.org/10.29058/mjwbs.2020.3.8.

22. T. Sengul and A. Karadag, "Determination of Nurses' Level of Knowledge on the Prevention of Pressure Ulcers: The Case of Turkey," *Journal of Tissue Viability* 29, no. 4 (2020): 337–341, https://doi.org/10.1016/j.jtv.2020.06.005.

23. D. Yilmaz Akyaz, T. Cevizci, and T. Sengul, "Everyday Prevention: The Impact of Daily Comprehensive Skin Assessments on Pressure Injury Healing in the General ICU," *Advances in Skin & Wound Care* 37, no. 5 (2024): 248–253, https://doi.org/10.1097/ASW.0000000000000143.

24. J. Hong, M. Kim, E. E. Suh, S. Cho, and S. Jang, "Comparison of Fatigue, Quality of Life, Turnover Intention, and Safety Incident Frequency Between 2-Shift and 3-Shift Korean Nurses," *International Journal of Environmental Research and Public Health* 18, no. 15 (2021): 7953, https://doi.org/10.3390/ijerph18157953.

25. K. Sagherian, L. M. Steege, S. J. Cobb, and H. Cho, "Insomnia, Fatigue and Psychosocial Well-Being During COVID-19 Pandemic: A Cross-Sectional Survey of Hospital Nursing Staff in the United States," *Journal of Clinical Nursing* 32 (2023): 5382–5395, https://doi.org/10.1111/jocn.15566.

26. P. C. Winwood, A. H. Winefield, D. Dawson, and K. Lushington, "Development and Validation of a Scale to Measure Work-Related Fatigue and Recovery: The Occupational Fatigue Exhaustion/Recovery Scale (OFER)," *Journal of Occupational and Environmental Medicine* 47, no. 6 (2005): 594–606, https://doi.org/10.1097/01.jom.0000161740.71049.c4.

27. S. Havlioglu, T. Ortabag, and P. C. Winwood, "Turkish Validity and Reliability of the Occupational Fatigue Exhaustion/Recovery Scale," *Medicine Science* 8, no. 4 (2019): 916–922, https://doi.org/10.5455/medscience.2019.08.9112.

28. J. Ball, T. Day, T. Murrells, et al., "Cross-Sectional Examination of the Association Between Shift Length and Hospital Nurses Job Satisfaction and Nurse Reported Quality Measures," *BMC Nursing* 16 (2017): 26, https://doi.org/10.1186/s12912-017-0221-7.

29. O. Z. Ejebu, C. Dall'Ora, and P. Griffiths, "Nurses' Experiences and Preferences Around Shift Patterns: A Scoping Review," *PLoS One* 16, no. 8 (2021): e0256300, https://doi.org/10.1371/journal.pone.0256300.

30. M. Di Muzio, S. Dionisi, E. Di Simone, et al., "Can Nurses' Shift Work Jeopardize the Patient Safety A Systematic Review," *European Review for Medical and Pharmacological Sciences* 23, no. 10 (2019): 4507–4519, https://doi.org/10.26355/eurrev_201905_17963.

31. J. Kang, W. Noh, and Y. Lee, "Sleep Quality Among Shift-Work Nurses: A Systematic Review and Meta-Analysis," *Applied Nursing Research: ANR* 52 (2020): 151227, https://doi.org/10.1016/j.apnr.2019.151227.

32. A. L. Weaver, S. E. Stutzman, C. Supnet, and D. M. Olson, "Sleep Quality, but Not Quantity, Is Associated With Self-Perceived Minor Error Rates Among Emergency Department Nurses," *International Emergency Nursing* 25 (2016): 48–52, https://doi.org/10.1016/j.ienj.2015.08.003.

33. K. R. Cochran, "An Examination of Work Characteristics, Fatigue, and Recovery Among Acute Care Nurses," *Journal of Nursing Administration* 51, no. 2 (2021): 89–94, https://doi.org/10.1097/NNA.0000000000000975.

34. B. Alshammari, A. AlEnazy, F. Alshammari, N. Madkhali, and M. Al-Masaeed, "Investigation of the Level and Factors Influencing Emergency Department Nurses Fatigue: A Case Study of the Saudi Arabian Context," *Healthcare (Basel)* 10, no. 7 (2022): 1294, https://doi.org/10.3390/healthcare10071294.

35. H. Cho, K. Sagherian, L. D. Scott, and L. M. Steege, "Occupational Fatigue, Individualized Nursing Care, and Quality of Nursing Care Among Hospital Nurses," *Journal of Nursing Scholarship* 54, no. 5 (2022): 648–657, https://doi.org/10.1111/jnu.12768.

1742481x, 2025, 8, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/iwj.70708 by Koc University, Wiley Online Library on [29/12/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

36. F. Yu, D. Somerville, and A. King, "Exploring the Impact of 12-Hour Shifts on Nurse Fatigue in Intensive Care Units," *Applied Nursing Research* 50 (2019): 151191, https://doi.org/10.1016/j.apnr.2019.151191.

37. S. Gungor, "Determination of the Relationship Between Job Intensification and Occupational Fatigue in Nurses (Master's Thesis). Istanbul University-Cerrahpasa, Institute of Graduate Studies," 2021.

38. M. O'Daniel and A. H. Rosenstein, "Professional Communication and Team Collaboration," in *Patient Safety and Quality: An Evidence-Based Handbook for Nurses*, ed. R. G. Hughes (Agency for Healthcare Research and Quality, 2008), 271–284, https://www.ncbi.nlm.nih.gov/books/NBK2637.

39. L. Younan, M. Clinton, S. Fares, F. E. Jardali, and H. Samaha, "The Relationship Between Work-Related Musculoskeletal Disorders, Chronic Occupational Fatigue, and Work Organization: A Multi-Hospital Cross-Sectional Study," *Journal of Advanced Nursing* 75, no. 8 (2019): 1667–1677, https://doi.org/10.1111/jan.13952.

40. OakBend Medical Center, "Differences between ICU and inpatient hospital floors," (2018), https://oakbendmedcenter.org/2018/08/31/differences-between-icu-and-inpatient-hospital-floors/.

41. N. Denny-Brown, D. Stone, B. Hays, and D. Gallagher, *COVID-19 Intensifies Nursing Home Workforce Challenges* (U.S. Department of Health & Human Services, Office of the Assistant Secretary for Planning and Evaluation (ASPE), 2021), https://aspe.hhs.gov/reports/covid-19-intensifies-nursing-home-workforce-challenges-0.

42. A. M. Bourgault, "The Nursing Shortage and Work Expectations Are in Critical Condition: Is Anyone Listening?," *Critical Care Nurse* 42, no. 2 (2022): 8–11, https://doi.org/10.4037/ccn2022909.

43. N. G. Castle and J. Engberg, "Organizational Characteristics Associated With Staff Turnover in Nursing Homes," *Gerontologist* 46, no. 1 (2006): 62–73, https://doi.org/10.1093/geront/46.1.62.

44. T. Sengul, A. Karadag, and H. Kilic, "Exploring Nursing Students' First Experiences Providing Wound and Ostomy Care to Patients: A Qualitative Study," *Advances in Skin & Wound Care* 37, no. 6 (2024): 304–310, https://doi.org/10.1097/ASW.0000000000000151.

45. T. Sengul, S. Senol Celik, and H. Kirkland-Kyhn, "The Role of Simulation in Pressure Injury Education: A Systematic Review," *Nursing Administration Quarterly* 49, no. 1 (2025): 35–43, https://doi.org/10.1097/NAQ.0000000000000661.

46. T. Sengul, A. Karadag, and H. Kirkland-Kyhn, "Wound Care Education in Undergraduate and Graduate Nursing Settings," *Nursing Clinics of North America* 60, no. 1 (2025): 197–206, https://doi.org/10.1016/j.cnur.2024.07.002.

1742481x, 2025, 8, Downloaded from https://onlinelibrary.wiley.com/doi/10.1111/jwj.70708 by Koc University, Wiley Online Library on [29/12/2025]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License