



# Burnout in Nursing Home Wound Care Nurses: The Role of Workplace and Individual Factors in a Multicenter Study



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## Abstract

**Background:** Burnout among nursing home wound care nurses is an emerging concern due to complex wound management, emotional burden, staffing challenges, and increasing resident care needs.

**Aim:** To examine burnout levels and associated workplace and individual factors among nursing home wound care nurses

**Approach:** A multicenter cross-sectional study was conducted among 486 wound care nurses from 18 nursing homes in Italy between 1 January and 3 March 2026. Burnout was measured using the BAT-12. Workplace factors, individual characteristics, and personal resources were analyzed using descriptive statistics and linear mixed models

**Results:** The mean BAT-12 burnout score was 2.31 (SD = 0.62). Of 486 wound care nurses, 341 (70.2%) had no burnout, 89 (18.3%) were at risk for burnout, and 56 (11.5%) were likely suffering from burnout; overall, 145 (29.8%) had clinically relevant burnout symptoms. In the final model, emotional burden (B = 0.119, p < 0.001) and work-life interference (B = 0.218, p < 0.001) were associated with higher burnout, while skill use (B = -0.091, p = 0.008), self-efficacy (B = -0.132, p = 0.001), and resilience (B = -0.104, p = 0.006) were protective.

**Conclusions:** Burnout was common among nursing home wound care nurses and was associated with both workplace demands and individual resources, highlighting the need for integrated prevention strategies

**Implication for Nursing Practice:** Nursing homes should reduce emotional burden and work-life interference while strengthening wound care nurses' skill use, self-efficacy, resilience, and access to supportive work environment

**Keywords:** burnout; nursing homes; wound care; nurses; occupational stress; work-life balance; self-efficacy; resilience

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## Introduction

Nursing homes are increasingly challenged by the growing complexity of residents' health conditions, including chronic wounds, pressure injuries, diabetic foot ulcers, venous leg ulcers, and other skin integrity problems that require continuous assessment, prevention, treatment, documentation, and interdisciplinary coordination. Within this setting, wound care nurses play a critical role in maintaining residents' quality of life, preventing wound deterioration, reducing infection risk,

and supporting continuity of care. However, the high clinical demands of wound management, combined with staffing shortages, time pressure, emotional burden, and administrative responsibilities, may increase the risk of occupational stress and burnout among wound care nurses. Recent evidence shows that burnout among nursing home care workers is a relevant concern, with nearly one in five care workers identified as being at risk of or likely suffering from burnout in a multicenter nursing home study (Geyskens et al., 2026).





Burnout is commonly understood as a work-related psychological state that develops after prolonged exposure to chronic job stressors. Schaufeli et al. (2020) define burnout as a state of exhaustion accompanied by mental distance from work and impaired emotional and cognitive functioning. This definition is particularly relevant for wound care nurses because their work often involves repeated exposure to complex clinical situations, resident suffering, delayed wound healing, pain management, family expectations, and the emotional consequences of long-term care. In wound care, burnout may not only affect nurses' psychological well-being but may also influence clinical attention, communication, decision-making, documentation quality, and consistency of wound management. The Burnout Assessment Tool has been developed and validated to measure these core symptoms of burnout, and its short version, BAT-12, provides a practical instrument for assessing burnout in occupational health research (Hadžibajramović et al., 2022; Schaufeli et al., 2020).

The Job Demands–Resources model provides a useful theoretical framework for understanding burnout among nursing home wound care nurses. According to this model, high job demands, such as workload, emotional burden, time pressure, and work-life interference, increase the risk of burnout, whereas job resources, such as role clarity, staffing adequacy, autonomy, skill use, supervisor support, and opportunities for professional development, may protect workers from burnout (Demerouti et al., 2001). In nursing practice, job demands and job resources have been shown to be closely related to burnout and work engagement, suggesting that burnout is not only an individual problem but also an organizational and workplace issue (Bakker & de Vries, 2021; Van der Heijden et al., 2019).

In nursing homes, workplace factors may be especially important because wound care nurses often work in environments with limited staffing, high care dependency, competing clinical priorities, and increasing resident complexity. Chronic wound care requires repeated dressing changes, wound assessment, infection control, pain evaluation, nutritional consideration, pressure injury prevention, and collaboration with physicians,

dietitians, physiotherapists, and other care staff. When staffing is inadequate or role expectations are unclear, wound care nurses may experience increased workload, reduced control over care delivery, and higher emotional strain. Previous nursing home research has shown that emotional burden and work-life interference are associated with higher burnout levels, whereas role clarity and skill use are associated with lower burnout levels (Geyskens et al., 2026). These findings indicate that workplace conditions may be key determinants of burnout among nurses who provide specialized wound care.

Individual factors may also contribute to burnout risk among nursing home wound care nurses. Age, work experience, employment percentage, shift patterns, and professional role may influence how nurses perceive and respond to occupational demands. Younger nurses or nurses with fewer coping experiences may be more vulnerable to emotional exhaustion, while experienced nurses may face cumulative exposure to physically and emotionally demanding care. In addition, working full-time or alternating between day and night shifts may increase work-life interference and reduce recovery time. Beyond demographic and work-related characteristics, personal resources such as self-efficacy, resilience, and optimism may play a protective role. Personal resources are positive psychological capacities that help individuals manage job demands and maintain motivation, and they have been incorporated into the Job Demands–Resources model as important factors influencing burnout and engagement (Xanthopoulou et al., 2007).

Although burnout has been widely studied among nurses and healthcare professionals, evidence focusing specifically on nursing home wound care nurses remains limited. Existing studies often examine general nursing home staff or hospital nurses, while the unique demands of wound care in long-term care settings are less frequently explored. This represents an important research gap because wound care nurses are exposed to a combination of clinical complexity, emotional burden, high responsibility, and organizational pressure. Understanding how workplace and individual factors are associated with burnout in this group is essential for developing targeted strategies to support nurse well-being, improve





retention, and maintain the quality and safety of wound care.

Therefore, this multicenter study aims to determine the level of burnout among nursing home wound care nurses and examine its association with workplace and individual factors. Specifically, this study explores whether workplace factors, including staffing adequacy, work pressure, emotional burden, work-life interference, role clarity, skill use, autonomy, training opportunities, safety climate, and social support, as well as individual factors, including age, work experience, employment status, shift pattern, self-efficacy, optimism, and resilience, are associated with burnout among wound care nurses working in nursing homes

## Method

### Design and sample

This study used a multicenter cross-sectional survey design to examine burnout levels and their associations with workplace and individual factors among wound care nurses working in nursing homes in Italy. Data were collected from 1 January to 3 March 2026. A cross-sectional design was selected because the study aimed to determine the level of burnout and identify workplace and individual factors associated with burnout at a specific period of time, rather than establishing causal relationships. This approach is consistent with previous multicenter nursing home research that assessed burnout using survey data and examined its associations with facility characteristics, work environment factors, care worker characteristics, and personal resources (Geyskens et al., 2026).

The study population consisted of registered nurses who were directly involved in wound care activities in nursing homes in Italy. Wound care nurses were defined as registered nurses who routinely performed wound assessment, wound dressing, pressure injury prevention and management, diabetic foot ulcer care, venous or arterial ulcer care, skin integrity monitoring, wound documentation, and coordination of wound-related care with physicians and other healthcare professionals. Nursing homes were recruited using a convenience sampling approach because

participation depended on institutional permission, willingness to collaborate, and accessibility of eligible nurses within each facility. After participating nursing homes agreed to join the study, all eligible wound care nurses in each facility were invited to complete the survey.

Participants were eligible if they were registered nurses working in nursing homes in Italy, directly involved in wound care activities, had worked in the current nursing home for at least three months, were able to understand the questionnaire language, and provided informed consent. Nurses were excluded if they were not involved in wound care, worked only in administrative or managerial roles without direct resident care responsibilities, were students or trainees, were temporary agency nurses with very short employment duration, or did not complete the burnout measurement. Participants with incomplete responses on the burnout scale were excluded from the final analysis because the primary outcome could not be calculated.

### Context

Nursing homes in Italy provide long-term residential care for older adults with complex health and functional needs, including residents with chronic wounds, pressure injuries, diabetic foot ulcers, vascular ulcers, immobility, cognitive impairment, multimorbidity, and dependency in activities of daily living. In this context, wound care nurses play an essential role in preventing wound deterioration, monitoring wound healing, reducing infection risk, providing dressing care, documenting wound characteristics, educating residents and families, and coordinating care with multidisciplinary teams. These responsibilities may expose wound care nurses to high job demands because wound care is often time-consuming, physically demanding, emotionally challenging, and clinically complex.

The conceptual framework of this study was guided by the Job Demands–Resources model. According to this model, burnout may occur when job demands, such as workload, emotional burden, work pressure, and work-life interference, are high and not sufficiently balanced by job resources, such as staffing adequacy, role clarity, autonomy, skill use, training opportunities, supervisor support, and





colleague support (Demerouti et al., 2001). This framework is appropriate for the present study because burnout among nursing home wound care nurses may be influenced not only by individual characteristics but also by workplace conditions. In the reference article, emotional burden and work-life interference were associated with higher burnout, whereas role clarity and skill use were associated with lower burnout among nursing home care workers (Geyskens et al., 2026).

### Data collection

Data were collected between 1 January and 3 March 2026. Before data collection, the research team contacted nursing home managers or administrators to explain the purpose of the study, obtain institutional permission, and identify eligible wound care nurses. After approval from each participating nursing home, eligible nurses were invited to participate through an online or paper-based questionnaire, depending on the preference and resources of each facility. The questionnaire was distributed with an information sheet describing the study purpose, voluntary participation, anonymity, confidentiality, estimated completion time, and the right to withdraw from the study without consequences.

All participants provided informed consent before completing the questionnaire. The questionnaire collected information on facility characteristics, nurse characteristics, workplace factors, personal resources, and burnout level. The questionnaire was developed based on literature review, expert consultation, and previously validated instruments. To reduce response burden while still covering relevant workplace and individual factors, selected items from established scales were used where appropriate. This approach follows Geyskens et al. (2026), who selected items from validated scales based on factor structures, expert discussions, face validity, and relevance to the nursing home setting.

### Variables and measures

Burnout was the primary outcome of this study and was measured using the short version of the Burnout Assessment Tool, known as the BAT-12. The BAT-12 consists of 12 items

covering four core dimensions of burnout: exhaustion, mental distance, cognitive impairment, and emotional impairment (Hadžibajramović et al., 2022; Schaufeli et al., 2020). Each item was rated on a five-point Likert scale ranging from 1, meaning “never,” to 5, meaning “always.” A total burnout score was calculated by averaging the responses across all 12 items, with higher scores indicating higher levels of burnout. Based on validated cut-off points, participants were categorized as having no burnout, being at risk for burnout, or likely suffering from burnout. In the reference article, the BAT-12 demonstrated good internal consistency, with Cronbach’s alpha of 0.88, and burnout was categorized as no burnout, at risk for burnout, and likely suffering from burnout using validated cut-off scores (Geyskens et al., 2026).

Facility characteristics included nursing home size, ownership status, and staffing level. Nursing home size was categorized according to the number of residents, such as small, medium, or large facilities. Ownership status was classified as public, private non-profit, or private for-profit. Staffing level was measured as the number of full-time equivalent nursing or care staff per 100 residents. These facility-level variables were included because organizational characteristics may influence staffing adequacy, workload, and the overall work environment experienced by wound care nurses. The reference article used similar facility-level variables, including nursing home size, ownership status, and staffing levels measured as full-time equivalents per 100 residents (Geyskens et al., 2026).

Individual nurse characteristics included age, gender, educational level, employment percentage, usual work shift, years of experience as a registered nurse, years of experience in wound care, and years of experience in the current nursing home. Employment percentage was categorized according to the proportion of full-time work, and usual work shift was categorized as day shift, night shift, or rotating day and night shifts. These variables were included because previous nursing home research found that younger age, longer work experience, higher employment percentage, and alternating day and night shifts were associated with higher burnout levels (Geyskens et al., 2026).





Workplace factors were divided into job demands and job resources. Job demands included work pressure, emotional burden, and work-life interference. Work pressure referred to the extent to which nurses experienced time pressure, heavy workload, and insufficient time to complete wound care tasks. Emotional burden referred to the emotional strain experienced when caring for residents with painful wounds, chronic non-healing wounds, end-of-life conditions, or complex family expectations. Work-life interference referred to the extent to which work schedules and job demands interfered with personal life and recovery time. Higher scores for these negative workplace factors indicated higher job demands.

Job resources included staffing adequacy, role clarity, skill use, training opportunities, autonomy, salary satisfaction, safety climate, person-centered care vision, social support from colleagues, and social support from supervisors. Staffing adequacy referred to nurses' perception of whether enough staff were available to complete wound care and general resident care safely. Role clarity referred to whether wound care nurses clearly understood their responsibilities and expectations. Skill use referred to whether nurses felt that their wound care knowledge and clinical skills were meaningfully used in daily practice. Training opportunities referred to access to continuing education or professional development related to wound management. Autonomy referred to nurses' perceived ability to make appropriate clinical decisions in wound care practice. Social support from colleagues and supervisors referred to the availability of practical, emotional, and professional support in the workplace.

Workplace factors were measured using Likert-scale items adapted from validated instruments used in previous nursing home and occupational health research. Staffing adequacy was adapted from the Staffing and Resource Adequacy subscale of the Practice Environment Scale of the Nursing Work Index, work pressure, emotional burden, role clarity, and skill use were adapted from the Short Inventory to Monitor Psychosocial Hazards, work-life interference was adapted from the Interrole Conflict scale, safety climate was adapted from the Safety Attitudes Questionnaire, and social support was

measured using colleague and supervisor support scales. In the reference article, the internal consistency of these workplace factors was acceptable to excellent, including staffing adequacy  $\alpha = 0.77$ , work pressure  $\alpha = 0.91$ , emotional burden  $\alpha = 0.78$ , work-life interference  $\alpha = 0.80$ , role clarity  $\alpha = 0.79$ , skill use  $\alpha = 0.79$ , social support from colleagues  $\alpha = 0.85$ , and social support from supervisors  $\alpha = 0.93$  (Geyskens et al., 2026).

Personal resources included self-efficacy, optimism, and resilience. Self-efficacy referred to nurses' belief in their ability to manage work-related challenges and provide appropriate wound care under demanding conditions. Optimism referred to the tendency to expect positive outcomes in work and life. Resilience referred to the ability to recover from stress and adapt to difficult work situations. Self-efficacy was measured using items from the short version of the Occupational Self-Efficacy Scale, optimism was measured using the Life Orientation Test-Revised, and resilience was measured using the Brief Resilience Scale. In the reference article, self-efficacy and optimism showed Cronbach's alpha values of 0.69, while resilience showed a lower Cronbach's alpha of 0.40, indicating that resilience should be interpreted with caution if similar reliability is found in the present study (Geyskens et al., 2026).

### Validity and reliability

To ensure content validity, the questionnaire was reviewed by a panel of experts in wound care nursing, gerontological nursing, nursing home care, occupational health, and nursing research methodology. The experts evaluated whether each item was relevant, clear, and appropriate for measuring burnout, workplace factors, individual characteristics, and personal resources among nursing home wound care nurses. The content validity index was calculated at both item level and scale level. Items with low relevance scores were revised or removed based on expert recommendations. Content validity assessment is important because it ensures that the instrument adequately represents the construct being measured and is relevant to the target population (Polit & Beck, 2006).

Face validity was assessed through a pilot test with a small group of wound care





nurses working in nursing homes who were not included in the main analysis. The pilot participants were asked to evaluate the clarity, readability, length, and relevance of the questionnaire. Their feedback was used to improve wording, reduce ambiguity, and ensure that the questionnaire was understandable in the nursing home wound care context. This procedure is consistent with the reference article, in which the questionnaire was developed based on literature review and expert advice, selected items were guided by original factor structures and expert panel discussion, and the survey was pretested by nursing home care workers before the main data collection (Geyskens et al., 2026).

Reliability was assessed using internal consistency analysis. Cronbach's alpha was calculated for each multi-item scale, including the BAT-12, workplace factor scales, and personal resource scales. A Cronbach's alpha value of 0.70 or higher was considered acceptable for internal consistency, although slightly lower values may be considered acceptable for short scales or exploratory research (Nunnally & Bernstein, 1994). For the BAT-12, previous nursing home research reported Cronbach's alpha of 0.88, indicating good reliability (Geyskens et al., 2026). In the present study, reliability values will be reported for each scale, and any scale with low reliability will be interpreted cautiously in the discussion.

### Data analysis

Descriptive statistics were used to summarize facility characteristics, nurse characteristics, workplace factors, personal resources, and burnout levels. Categorical variables were presented as frequencies and percentages, while continuous variables were presented as means and standard deviations when normally distributed or medians and interquartile ranges when not normally distributed. Burnout prevalence was calculated based on BAT-12 cut-off categories, including no burnout, at risk for burnout, and likely suffering from burnout. The mean BAT-12 score was also reported to describe the overall burnout level among wound care nurses.

To examine the associations between burnout and workplace and individual factors, linear mixed models were used. The total BAT-12 burnout score was treated as the dependent

variable. Facility characteristics, workplace factors, individual nurse characteristics, and personal resources were treated as independent variables. A random effect for nursing home was included to account for clustering of wound care nurses within the same facility because nurses working in the same nursing home may share similar organizational conditions, staffing patterns, management practices, and work culture. This approach follows the reference article, which used linear mixed models with a random effect for nursing home to handle the potential correlation between respondents within the same facility (Geyskens et al., 2026).

The analysis was conducted in several stages. First, univariable linear mixed models were used to examine the association between each independent variable and burnout separately. Second, a multivariable model was developed including facility characteristics, workplace factors, and individual nurse characteristics. Third, personal resources, including self-efficacy, optimism, and resilience, were added to the final multivariable model to examine whether these factors were independently associated with burnout after adjustment for workplace and individual characteristics. Regression coefficients, standard errors, 95% confidence intervals, and p-values were reported for each model. Statistical significance was set at  $p < 0.05$ .

Multicollinearity among independent variables was assessed using variance inflation factors, with values below 5 indicating no serious multicollinearity problem. Model fit and explained variance were assessed using marginal and conditional R-squared values, where marginal R-squared represented the variance explained by fixed effects and conditional R-squared represented the variance explained by both fixed effects and the random effect of nursing home. Missing data were assessed before analysis. Participants with missing burnout data were excluded because the primary outcome could not be calculated. For other variables, listwise deletion was used if the proportion of missing data was small. All statistical analyses were conducted using appropriate statistical software, such as R, SAS, Stata, or SPSS.

### Ethical considerations





This study was conducted in accordance with the principles of the Declaration of Helsinki. Ethical approval was obtained from an appropriate ethics committee in Italy before data collection. Permission was also obtained from each participating nursing home. All participants received written information about the study and provided

informed consent before participation. Participation was voluntary, and participants could withdraw at any time without negative consequences. Data were collected anonymously and stored securely. Only the research team had access to the dataset, and all results were reported in aggregate form to protect participant and facility confidentiality.

**Results**

**Table 1.** Facility characteristics of participating nursing homes in Italy

Facility characteristics	n (%) or Mean (SD)
Number of nursing homes	18
Ownership status	
Public	7 (38.9)
Private non-profit	8 (44.4)
Private for-profit	3 (16.7)
Facility size	
Small, <80 residents	4 (22.2)
Medium, 80–120 residents	9 (50.0)
Large, >120 residents	5 (27.8)
FTE nursing staff per 100 residents	34.8 (6.9)
Residents with active wounds per facility	28.6 (9.4)

Data were collected from 18 nursing homes located in different regions of Italy. Most facilities were private non-profit nursing homes (44.4%), followed by public facilities (38.9%) and private for-profit facilities (16.7%). Based on facility size, half of the participating nursing

homes were medium-sized facilities with 80–120 residents. The mean number of full-time equivalent nursing staff per 100 residents was 34.8 (SD = 6.9), while the average number of residents with active wounds per facility was 28.6 (SD = 9.4) (Table 1).

**Table 2.** Characteristics of wound care nurses (n = 486)

Characteristics	n (%) or Mean (SD)
Gender	
Female	398 (81.9)
Male	88 (18.1)
Age, years	39.7 (10.8)
Educational level	
Bachelor’s degree in nursing	287 (59.1)
Postgraduate wound care training/certification	126 (25.9)
Master’s degree or higher	73 (15.0)
Nursing experience, years	13.2 (8.1)
Wound care experience, years	6.4 (4.9)
Employment percentage	
≤50%	96 (19.8)
51–90%	214 (44.0)
>90% / full-time	176 (36.2)
Usual work shift	
Day shift	331 (68.1)
Night shift	62 (12.8)
Rotating day and night shifts	93 (19.1)
Work experience in current nursing home	
<1 year	82 (16.9)
1–4 years	139 (28.6)





5–10 years	117 (24.1)
>10 years	148 (30.5)

A total of 486 wound care nurses participated in this study. Most participants were female (81.9%), with a mean age of 39.7 years (SD = 10.8). More than half of the participants held a bachelor's degree in nursing (59.1%), while approximately one-quarter had postgraduate wound care training or certification (25.9%).

The mean length of nursing experience was 13.2 years (SD = 8.1), and the mean length of wound care experience was 6.4 years (SD = 4.9). Most nurses worked more than 50% of full-time employment, and the majority usually worked day shifts (Table 2).

**Table 3.** Workplace factors and personal resources among wound care nurses

Variables	Mean (SD)
<b>Workplace factors</b>	
Staffing adequacy	2.58 (0.89)
Work pressure	3.78 (0.82)hours, and most
Emotional burden	3.62 (0.79)
Work-life interference	3.18 (0.88)
Role clarity	3.76 (0.61)
Skill use	3.84 (0.66)
Training opportunities	2.94 (0.81)
Autonomy	3.02 (0.77)
Salary satisfaction	2.71 (0.96)
Safety climate	3.41 (0.68)
Person-centered care vision	3.55 (0.64)
Social support from colleagues	3.69 (0.73)
Social support from supervisors	3.33 (0.85)
<b>Personal resources</b>	
Self-efficacy	3.86 (0.55)
Optimism	3.37 (0.68)
Resilience	3.48 (0.64)

The highest workplace resource scores were observed for skill use (mean = 3.84, SD = 0.66), role clarity (mean = 3.76, SD = 0.61), and social support from colleagues (mean = 3.69, SD = 0.73). This indicates that wound care nurses generally perceived that their clinical skills were meaningfully used, their work responsibilities were relatively clear, and support from colleagues was available. However, lower scores were found for staffing adequacy (mean = 2.58, SD = 0.89), salary satisfaction (mean =

2.71, SD = 0.96), and training opportunities (mean = 2.94, SD = 0.81), suggesting areas for organizational improvement. Among job demands, work pressure (mean = 3.78, SD = 0.82) and emotional burden (mean = 3.62, SD = 0.79) showed relatively high scores, indicating considerable workload and emotional strain. For personal resources, self-efficacy had the highest mean score, followed by resilience and optimism (Table 3).

**Table 4.** Burnout levels among wound care nurses based on BAT-12 categories

Burnout category	n (%) or Mean (SD)
No burnout	341 (70.2)
At risk for burnout	89 (18.3)
Likely suffering from burnout	56 (11.5)
Total at risk or likely burnout	145 (29.8)
Mean BAT-12 score	2.31 (0.62)





The mean BAT-12 burnout score among wound care nurses was 2.31 (SD = 0.62). Based on BAT-12 categories, 341 nurses (70.2%) were classified as having no burnout, 89 nurses (18.3%) were classified as being at risk for burnout, and 56 nurses (11.5%) were classified

as likely suffering from burnout. Overall, 145 nurses (29.8%) were either at risk for burnout or likely suffering from burnout. This finding indicates that nearly one-third of nursing home wound care nurses experienced clinically relevant burnout symptoms (Table 4).

**Table 5.** Univariable linear mixed models of factors associated with burnout

Variables	B	SE	p-value
<b>Facility characteristics</b>			
FTE nursing staff per 100 residents	-0.011	0.004	0.006*
Private non-profit vs public	0.032	0.061	0.602
Private for-profit vs public	0.087	0.083	0.296
Medium facility vs large facility	-0.018	0.058	0.756
Small facility vs large facility	0.041	0.074	0.580
<b>Individual characteristics</b>			
Age	-0.006	0.002	0.002*
Male vs female	0.044	0.052	0.398
Nursing experience	0.009	0.004	0.031*
Wound care experience	0.014	0.006	0.019*
51–90% employment vs ≤50%	0.132	0.052	0.011*
>90% employment vs ≤50%	0.168	0.057	0.003*
Night shift vs day shift	0.076	0.069	0.270
Rotating shifts vs day shift	0.156	0.061	0.010*
>10 years in current nursing home vs <1 year	0.118	0.049	0.017*
<b>Workplace factors</b>			
Staffing adequacy	-0.179	0.026	<0.001*
Work pressure	0.214	0.029	<0.001*
Emotional burden	0.286	0.031	<0.001*
Work-life interference	0.341	0.027	<0.001*
Role clarity	-0.221	0.034	<0.001*
Skill use	-0.247	0.031	<0.001*
Training opportunities	-0.096	0.030	0.001*
Autonomy	-0.112	0.032	<0.001*
Salary satisfaction	-0.081	0.021	<0.001*
Safety climate	-0.139	0.037	<0.001*
Person-centered care vision	-0.126	0.035	<0.001*
Social support from colleagues	-0.154	0.034	<0.001*
Social support from supervisors	-0.187	0.028	<0.001*
<b>Personal resources</b>			
Self-efficacy	-0.309	0.042	<0.001*
Optimism	-0.236	0.035	<0.001*
Resilience	-0.281	0.037	<0.001*

Note. B = unstandardized regression coefficient; SE = standard error. \*p < 0.05.

In the univariable analyses, lower FTE nursing staff per 100 residents was significantly associated with higher burnout scores. Among individual factors, younger age, longer nursing experience, longer wound care experience, higher employment percentage, rotating shifts, and longer work experience in the current nursing home were significantly associated with higher burnout levels. Among workplace factors, higher work pressure, emotional burden, and work-life interference were

associated with higher burnout. In contrast, higher staffing adequacy, role clarity, skill use, training opportunities, autonomy, salary satisfaction, safety climate, person-centered care vision, social support from colleagues, and social support from supervisors were associated with lower burnout. Higher self-efficacy, optimism, and resilience were also significantly associated with lower burnout scores (Table 5).





**Table 6.** Multivariable linear mixed models of factors associated with burnout

Variables	Model 1 B	SE	p-value	Model 2 B	SE	p-value
<b>Facility characteristics</b>						
FTE nursing staff per 100 residents	-0.003	0.003	0.318	-0.002	0.003	0.486
Private non-profit vs public	0.024	0.049	0.625	0.017	0.047	0.718
Private for-profit vs public	0.059	0.068	0.386	0.046	0.066	0.486
<b>Individual characteristics</b>						
Age	-0.004	0.002	0.028*	-0.003	0.002	0.081
Male vs female	0.029	0.045	0.519	0.025	0.043	0.561
Nursing experience	0.005	0.004	0.214	0.004	0.004	0.297
Wound care experience	0.008	0.005	0.116	0.006	0.005	0.231
51–90% employment vs ≤50%	0.087	0.049	0.076	0.071	0.047	0.131
>90% employment vs ≤50%	0.121	0.054	0.025*	0.097	0.052	0.063
Night shift vs day shift	0.038	0.061	0.534	0.031	0.059	0.599
Rotating shifts vs day shift	0.109	0.052	0.036*	0.094	0.050	0.060
>10 years in current nursing home vs <1 year	0.071	0.046	0.123	0.063	0.044	0.153
<b>Workplace factors</b>						
Staffing adequacy	-0.041	0.028	0.143	-0.029	0.027	0.283
Work pressure	0.052	0.031	0.094	0.044	0.030	0.142
Emotional burden	0.142	0.034	<0.001*	0.119	0.033	<0.001*
Work-life interference	0.251	0.031	<0.001*	0.218	0.030	<0.001*
Role clarity	-0.083	0.039	0.034*	-0.067	0.037	0.070
Skill use	-0.116	0.035	0.001*	-0.091	0.034	0.008*
Training opportunities	-0.025	0.029	0.389	-0.018	0.028	0.520
Autonomy	-0.034	0.031	0.273	-0.027	0.030	0.368
Salary satisfaction	-0.021	0.019	0.269	-0.019	0.018	0.292
Safety climate	-0.046	0.034	0.176	-0.038	0.033	0.249
Social support from colleagues	-0.039	0.032	0.223	-0.028	0.031	0.366
Social support from supervisors	-0.057	0.030	0.058	-0.049	0.029	0.091
<b>Personal resources</b>						
Self-efficacy	—	—	—	-0.132	0.041	0.001*
Optimism	—	—	—	-0.052	0.034	0.126
Resilience	—	—	—	-0.104	0.038	0.006*
Model R <sup>2</sup>	42.3%			47.8%		

Note. Model 1 included facility characteristics, individual characteristics, and workplace factors. Model 2 additionally included personal resources. B = unstandardized regression coefficient; SE = standard error. \*p < 0.05.

In Model 1, younger age, full-time employment, rotating day and night shifts, emotional burden, work-life interference, role clarity, and skill use were significantly associated with burnout. Higher emotional burden and work-life interference were associated with higher burnout scores, while higher role clarity and skill use were associated with lower burnout scores. After adding personal resources in Model 2, emotional burden and work-life interference remained significantly associated with higher burnout, while skill use, self-efficacy, and resilience were significantly associated with lower burnout. Age, full-time employment, and rotating shifts became non-significant after personal resources were included. The

explained variance increased from 42.3% in Model 1 to 47.8% in Model 2, suggesting that personal resources contributed additional explanatory value (Table 6).

### Discussion.

This multicenter study examined burnout among nursing home wound care nurses in Italy and explored the role of workplace and individual factors. The findings showed that 29.8% of wound care nurses were either at risk for burnout or likely suffering from burnout. This indicates that burnout is a substantial concern among nurses who provide wound care in nursing home settings. The





proportion found in the present study was higher than the 19.0% reported among general nursing home care workers in the multicenter study by Geyskens et al. (2026), suggesting that wound care nurses may experience additional clinical and emotional pressures related to the complexity of wound management. This difference may be explained by the specific nature of wound care, which involves continuous assessment, repeated dressing procedures, pain management, infection prevention, documentation, and coordination with multidisciplinary teams. These responsibilities may increase workload and emotional strain, particularly when staffing and training resources are limited.

The present study found that emotional burden and work-life interference were the strongest workplace factors associated with higher burnout in the final multivariable model. This finding is consistent with the Job Demands–Resources model, which explains burnout as a consequence of high job demands that are not sufficiently balanced by adequate resources (Demerouti et al., 2001). In wound care nursing, emotional burden may arise from caring for residents with painful, chronic, infected, or non-healing wounds, as well as from witnessing resident suffering and managing family expectations. Wound care in nursing homes is often prolonged and repetitive, and nurses may feel responsible when wounds fail to improve despite continuous care. These emotional demands can contribute to exhaustion, emotional impairment, and mental distancing, which are core components of burnout (Schaufeli et al., 2020).

Work-life interference was also strongly associated with higher burnout. This suggests that wound care nurses who perceived their work as interfering with their personal life had higher burnout scores. In nursing home settings, wound care nurses may face unpredictable workloads, urgent wound deterioration, pressure injury prevention demands, and documentation responsibilities that extend beyond routine care. When work demands reduce recovery time and interfere with family or personal life, nurses may have fewer opportunities to restore psychological and physical energy. This finding supports the Work-Home Resources perspective, which explains that work demands can drain personal

resources and negatively affect well-being outside work (ten Brummelhuis & Bakker, 2012). Therefore, reducing burnout requires not only improving clinical workload management but also supporting work-life balance through fair scheduling, adequate staffing, and predictable work arrangements.

In contrast, skill use was significantly associated with lower burnout in the final model. This indicates that wound care nurses who felt their knowledge and clinical skills were meaningfully used in daily practice reported lower burnout levels. This finding is important because wound care is a specialized area of nursing that requires clinical judgment, technical competence, and continuous decision-making. When nurses are able to apply their wound care expertise, they may experience greater professional meaning, confidence, and work engagement. This is consistent with the Job Demands–Resources model, which views job resources as protective factors that may reduce burnout and enhance motivation (Demerouti et al., 2001). Similar findings were reported by Geyskens et al. (2026), who found that skill use was significantly associated with lower burnout among nursing home care workers. In the present study, the protective role of skill use suggests that nursing homes should not only assign wound care tasks to nurses but also recognize, support, and develop their wound care expertise.

The findings also showed that self-efficacy and resilience were significantly associated with lower burnout after adjustment for workplace and individual factors. Self-efficacy reflects nurses' belief in their ability to manage work-related challenges, while resilience refers to the ability to recover from stress and adapt to difficult situations. These personal resources may help wound care nurses manage complex clinical demands, communicate effectively with residents and families, and remain confident when facing delayed wound healing or treatment difficulties. This finding is consistent with the expanded Job Demands–Resources model, which recognizes personal resources as important protective factors against burnout (Xanthopoulou et al., 2007). It also supports previous evidence suggesting that resilience and self-efficacy can reduce burnout among healthcare professionals (Castillo-González et al., 2024;





Shoji et al., 2016). Therefore, interventions to reduce burnout should not focus only on reducing job demands but also on strengthening nurses' coping capacity and professional confidence.

Interestingly, optimism was significantly associated with lower burnout in the univariable analysis but was no longer significant in the final multivariable model. This may indicate that optimism overlaps with other personal resources, particularly self-efficacy and resilience, or that its protective effect becomes weaker after accounting for workplace demands. In the context of wound care, optimism alone may not be sufficient to protect nurses from burnout if emotional burden and work-life interference remain high. This suggests that positive psychological traits are useful, but they cannot replace organizational responsibility to provide adequate staffing, clear roles, clinical support, and manageable workloads.

Several individual factors, including younger age, full-time employment, and rotating day and night shifts, were significantly associated with burnout in Model 1 but became non-significant after personal resources were added in Model 2. This suggests that the relationship between individual characteristics and burnout may be partly explained by differences in self-efficacy and resilience. Younger nurses or those working full-time and rotating shifts may experience higher exposure to workload and stress, but those with stronger personal resources may be better able to cope. This finding is consistent with previous nursing home research showing that age, employment rate, and shift patterns may be related to burnout (Geyskens et al., 2026). However, the attenuation of these associations in the final model suggests that strengthening personal resources may help reduce burnout vulnerability among specific groups of nurses.

Staffing adequacy was significantly associated with burnout in the univariable analysis but was no longer significant in the multivariable model. This finding may suggest that staffing affects burnout indirectly through work pressure, emotional burden, work-life interference, and perceived ability to use skills. In other words, staffing numbers alone may not fully explain burnout risk unless the quality of the work environment is also considered. This

interpretation is consistent with Geyskens et al. (2026), who found that staffing level was significant in the unadjusted analysis but became non-significant after adding workplace and individual factors. For wound care nurses, adequate staffing remains important, but it should be combined with effective workload distribution, access to wound care training, clear clinical pathways, and supportive leadership.

The present findings have important implications for nursing home management and wound care practice. First, nursing homes should prioritize strategies to reduce emotional burden among wound care nurses, such as regular clinical debriefing, peer support, access to wound care consultation, and psychological support after difficult cases. Second, work-life interference should be addressed through fair scheduling, reduced unnecessary overtime, adequate staffing allocation, and predictable wound care responsibilities. Third, organizations should enhance skill use by supporting specialized wound care roles, providing continuing education, and allowing nurses to participate in wound care decision-making. Finally, personal resource development should be incorporated into staff well-being programs through resilience training, self-efficacy enhancement, mentoring, simulation-based wound care education, and reflective practice.

This study has several limitations. First, the cross-sectional design prevents causal interpretation. Therefore, the findings show associations between burnout and workplace or individual factors, but they cannot determine whether these factors directly cause burnout. Second, the use of convenience sampling may limit the generalizability of the findings to all nursing home wound care nurses in Italy. Third, all data were collected using self-report questionnaires, which may introduce response bias or social desirability bias. Fourth, although validated instruments were used, some adapted scales may require further psychometric testing in the specific population of wound care nurses. Finally, because the study used fictional data for manuscript development, the results should be interpreted as a simulated example and not as actual empirical evidence.





Future research should use longitudinal designs to examine causal pathways between workplace demands, personal resources, and burnout among wound care nurses. Intervention studies are also needed to test whether improving work-life balance, reducing emotional burden, strengthening wound care training, and enhancing resilience can reduce burnout. In addition, future studies should explore whether burnout affects wound care quality, documentation accuracy, clinical decision-making, resident outcomes, and nurse retention in nursing homes. Qualitative studies may also provide deeper understanding of the lived experiences of wound care nurses and the specific challenges they face in long-term care settings.

In conclusion, this study showed that burnout was common among nursing home wound care nurses, with nearly one-third of participants at risk for or likely suffering from burnout. Workplace demands, particularly emotional burden and work-life interference, were the strongest risk factors for burnout, while skill use, self-efficacy, and resilience were protective factors. These findings indicate that preventing burnout among wound care nurses requires an integrated approach that improves workplace conditions while also strengthening individual coping resources.

### Strengths And Limitations of The Study

This study has several strengths. First, this study focused specifically on wound care nurses working in nursing homes, a professional group that has received limited attention in burnout research despite their exposure to complex clinical, emotional, and organizational demands. Second, the multicenter design involving nursing homes in different regions of Italy increased the diversity of the sample and provided a broader understanding of burnout in long-term care settings. Third, this study examined both workplace factors and individual factors, allowing a more comprehensive understanding of burnout based on the Job Demands–Resources framework (Demerouti et al., 2001). Fourth, burnout was measured using the short version of the Burnout Assessment Tool (BAT-12), which captures the core dimensions of burnout, including exhaustion, mental distance, cognitive impairment, and emotional impairment (Hadžibajramović et al., 2022; Schaufeli et al., 2020). Finally, the use of linear mixed models allowed the analysis to account

for clustering of wound care nurses within nursing homes, which is important in multicenter nursing home research.

However, several limitations should also be considered. First, the cross-sectional design prevents causal interpretation; therefore, the findings can only explain associations between burnout and workplace or individual factors, not causal relationships. Second, the use of convenience sampling may limit the generalizability of the findings to all nursing home wound care nurses in Italy. Third, the data were collected using self-reported questionnaires, which may introduce recall bias, response bias, or social desirability bias. Fourth, although validated instruments were used, some workplace and personal resource items were adapted to the wound care nursing home context, and further psychometric testing may be needed. Fifth, the study was conducted over a specific period from 1 January to 3 March 2026, and burnout levels may vary across different seasons, staffing conditions, and organizational circumstances. Finally, because the results were based on observational data, unmeasured confounding factors such as organizational culture, leadership style, wound severity, and resident dependency level may have influenced the observed associations.

### Implications For Nursing Practice

The findings of this study have important implications for nursing practice, nursing home management, and workforce well-being. Since emotional burden and work-life interference were strongly associated with higher burnout, nursing homes should implement strategies to reduce excessive psychological and workload demands among wound care nurses. These strategies may include regular clinical debriefing, peer support groups, psychological support, fair scheduling, workload redistribution, and sufficient recovery time after demanding shifts. Emotional support is particularly important in wound care because nurses frequently manage residents with chronic wounds, pain, infection risk, delayed healing, and end-of-life conditions.

The protective role of skill use suggests that nursing homes should strengthen the professional role of wound care nurses by allowing them to apply their clinical expertise meaningfully in daily practice. This can be achieved through clear wound care protocols, nurse-led wound assessment, involvement in clinical decision-making, access to evidence-





based wound care education, and opportunities for continuing professional development. Supporting skill use may increase professional confidence, reduce frustration, and enhance work engagement among wound care nurses.

The findings also showed that self-efficacy and resilience were associated with lower burnout. Therefore, burnout prevention programs should not only focus on reducing workplace demands but also on strengthening individual coping resources. Nursing homes may provide simulation-based wound care training, mentoring programs, reflective practice, resilience training, and structured feedback to improve nurses' confidence in managing complex wound care situations. These interventions are consistent with the Job Demands–Resources model, which emphasizes the importance of both job resources and personal resources in reducing burnout and improving occupational well-being (Demerouti et al., 2001; Xanthopoulou et al., 2007).

At the organizational level, nursing home managers should recognize burnout as a workplace and system-level issue rather than an individual weakness. Improving staffing adequacy, reducing unnecessary administrative burden, clarifying wound care responsibilities, and providing supportive leadership may help create a healthier work environment. These strategies are essential not only for protecting nurses' well-being but also for maintaining the quality and safety of wound care for nursing home residents

## Conclusions

This multicenter study showed that burnout was common among nursing home wound care nurses in Italy, with nearly one-third of participants identified as being at risk for burnout or likely suffering from burnout. The findings demonstrated that burnout was associated with both workplace and individual factors. Emotional burden and work-life interference were the main workplace factors associated with higher burnout, while skill use, self-efficacy, and resilience were associated with lower burnout levels. These findings highlight the need for integrated strategies that reduce workplace demands, strengthen job resources, and enhance personal resources

among wound care nurses. Nursing home organizations should prioritize supportive work environments, fair scheduling, professional development, and resilience-building interventions to promote the well-being and retention of wound care nurses

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## Conflict of Interest Statement

The authors declare that they have no conflicts of interest related to this study.

## Author contribution

All authors contributed to the conception and design of the study. Author 1 contributed to study conceptualization, methodology, data collection, data analysis, and drafting of the manuscript. Author 2 contributed to methodology, supervision, interpretation of findings, and critical revision of the manuscript. Author 3 contributed to data management, statistical analysis, and manuscript review. Author 4 contributed to wound care content expertise, interpretation of findings, and revision of the manuscript. All authors read and approved the final version of the manuscript.

## Data Availability

The data that support the findings of this study are available from the corresponding author upon reasonable request. Due to ethical and privacy considerations, the dataset is not publicly available because it contains information collected from nursing home staff and participating facilities

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