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Research Article

Burnout levels and care behaviours in intensive care nurses: A cross-sectional, multicentre study

Sevda Efil [a,*,1], Sevda Turen [b,2], Meryem Yıldız Ayvaz [c,3], Elif Bulbul [d,4], Tugba Yenı [e,5]

[a] Department of Nursing, Faculty of Health Sciences, Canakkale Onsekiz Mart University, Canakkale, Turkey
[b] Department of Nursing, Faculty of Health Sciences, Istanbul Kültür University, Istanbul, Turkey
[c] Department of Nursing, Faculty of Health Sciences, University of Kent, Istanbul, Turkey
[d] Department of Internal Medicine Nursing, Hamidiye Faculty of Nursing, University, of Health Sciences, Istanbul, Turkey
[e] Department of Nursing, Faculty of Health Sciences, Istanbul Bilgi University, Istanbul, Turkey

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ABSTRACT

Objective: To examine the relation between burnout levels and caring behaviours in intensive care nurses in Turkey, and the affecting factors.
Research methodology/design: The research was conducted as a descriptive, cross-sectional and multi-centred study.
Setting: In this study, an online questionnaire was applied in April and May 2021, using Google Form. A total of 460 intensive vare nurses responded to the questionnaire.
Main outcome measures: Burnout was assessed with the Maslach Burnout Inventory, and care behaviours with the Caring Behaviours Inventory-24.
Results: The nurses reported a high level of emotional exhaustion (73.9%) and depersonalization (52.2%), and a medium level of personal accomplishment (40%). The nurses' levels of perception of care quality were high (5.4 ± 0.6). It was found that their highest score on the subdimensions was on knowledge and skills (5.6 ± 0.5), and the lowest was on connectedness (5.2 ± 0.7). There was a very weak, respectively weak correlation, between nurses' emotional exhaustion (r = -0.1), respectively depersonalization (r = -0.2), and poor care behaviours. There was a strong correlation between low personal accomplishment scores and poor care behaviours (r = 0.8). It was found that the mean scores of the nurses' exhaustion and care behaviours varied according to many descriptive characteristics, such as education, age, professional experience, the unit where they worked, communication difficulties, living conditions and whether they had chosen nursing willingly.
Conclusions: It appears that the level of personal accomplishment, is the only subscale reflecting risk of burnout, that strongly correlates with care behaviour.

Implications for clinical practice

- Intensive care nurses with little clinical experience are at great risk of burnout.
- Personal accomplishment has a significant effect on caring behaviours.
- Itis recommended to periodically assess nurses' risk for burnout.

* Corresponding author at: Canakkale Onsekiz Mart University, Faculty of Health Sciences, Nursing Department, Canakkale, Turkey.
E-mail address: sevdaefil@comu.edu.tr (S. Efil).
[1] ORCID ID: https://orcid.org/0000-0002-4988-3743.
[2] ORCID ID: https://orcid.org/0000-0003-1123-5879.
[3] ORCID ID: https://orcid.org/0000-0003-2821-7458.
[4] ORCID ID: https://orcid.org/0000-0001-8920-1041.
[5] ORCID ID: https://orcid.org/0000-0002-4141-6681.

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Introduction

Admissions to the intensive care unit (ICU) are increasing in the whole world as a result of the global threat of the COVID-19 infection (WHO, 2020). In these units, it is important to meet steadily increasing health care needs (Farzi et al., 2017). Nurses are on the front line in the ICU in that they are in the closest contact with patients, and they have a professional obligation in responding to the COVID-19 pandemic (Bruyneel et al., 2021a). However, a reduction in manpower and the increasing intention to leave work because of burnout are an obstacle to providing health care services. A shortage of good quality nurses has long been a problem in the whole world, and now with the pandemic, there is concern that the number of experienced nurses may be seriously reduced (ICN, 2021). Stressful work environments affect the levels of depression and burnout in nurses (Vasconcelos et al., 2018; Vermeir et al., 2018). Burnout is generally described as a long-term response to chronic and interpersonal stressors, characterized by emotional exhaustion, depersonalization and a deficiency in social success (Maslach et al., 2001). COVID-19 patients' time in intensive care creates higher levels of stress and the risk of burnout in nurses (Chen et al., 2020). A large number of patients assigned to each nurse increases work load. At the same time, many factors such as difficult working conditions which do not improve, problems of interpersonal relations, role conflicts, complicated procedures, critical condition of patients, high demands of care needed by patients and their family members, and physical and emotional tiredness are causes of burnout in nurses (Alharbi et al., 2016; Bruyneel et al., 2021a; Chuang et al., 2016; Farzi et al., 2017).

Nurses focus on providing quality care in order to raise the patient's prospects of remaining alive to the highest level (Kurşun and Kanan, 2012). The complex care needs and treatment of critical care patients necessitate a reliable approach. However, burnout in nurses reduces their work productivity and distances them from a professional approach, causing them to show negative caring behaviour. This increases the potential for errors in care and treatment, which may negatively affect patient safety (Chuang et al., 2016). In addition, it causes less effort in the maintenance of quality standards and inadequacy in problem solving. In this way, there may be a negative effect on job satisfaction and the intention to leave to job (Panunto and De Brito Guirardelo, 2013). High levels of burnout in nurses cause negative health outcomes (Nantsupawat et al., 2017, Uchmanowicz et al., 2020), an increase in health service-related infections (Galletta et al., 2016), and medical errors constituting a risk to patients (Vahedian-Azimi et al., 2019). The negative effect of burnout on caring behaviours extends patients' stay in hospital. Nurses' experiences of burnout are important for improving care quality and patient satisfaction (Arrogante and Aparicio-Zaldivar, 2017). Also, the provision of high quality nursing care lowers the risk of morbidity and mortality (Farzi et al., 2017; Vermeir et al., 2018; Aiken et al., 2017). Therefore, assessing burnout at regular intervals will make it easier to determine possible negative situations. The aim of this study was to determine the burnout levels and care behaviours of nurses working in ICUs in Turkey, and to investigate the correlation between these factors. Also, the relation of caring behaviours and burnout to descriptive characteristics was assessed. To our knowledge, this is the first study in Turkey assessing the correlation between the risk of burnout in critical care nurses and caring behaviours.

Methods

Design, participants and setting

This research was conducted according to a descriptive, cross-sectional and multi-centered plan. At least one year is necessary for persons new to nursing to become comfortable in fulfilling their professional roles and to be counted as having experience in the work (Karahan and Kav, 2018). Therefore, only nurses who had been working for at least one year in ICUs for adults were included in the study. The emotional burden of providing empathetic care to infants and their families in neonatal ICUs may cause burnout. Also, the inability to provide a health improvement in infants may cause nurses to question the caring behaviours which they practice, and cause moral distress and burnout (Prentice et al., 2016), and so those working in neonatal ICUs were not included in the study. Also excluded from the study were nurses who were on leave or sick leave on the dates when the study was conducted. The minimum sample size in the population was determined by power analysis using the program G*Power (v3.1.9.7). In order for an analysis significance level of 0.05 (α) and an 80% statistical test power (1-β), effect size was calculated as 0.25. The minimum sample size according to standard deviation (SD) was determined to be 159. Data collection was accomplished with 460 nurses.

Data collection

Data collection was performed between 1 April and 1 May 2021 using an online Google questionnaire. The time of data collection coincided with the third wave of COVID-19 infection in Turkey (Ministry of Health, 2021). The online questionnaire was distributed in Turkey through hospitals, nursing associations (intensive care, graduate nurses' association) and social media.

Three main questionnaires were used for the current study.

Introductory information form: This form consisted of questions on socio-demographic characteristics such as gender, age, education, marital status and number of children, and work environment, such as professional experience, clinic, working arrangement, number of patients and communication problems.

Caring Behaviours Inventory-24 (CBI-24): The CBI-24 is used to assess nurses' caring behaviours (Wu et al., 2006). It consists of four subdimensions: assurance, knowledge and skills, respectfulness, and connectedness. In the subdimensions, the subdimension score is calculated by dividing the sub-item totals by the number of items. Scale total and subdimension scores are obtained ranging from 1 to 6 points. As the scale score increases, the care quality perception levels of the nurses increase as well. The Cronbach's alpha value for the scale total is 0.96 (Kurşun and Kanan, 2012).

Maslach Burnout Inventory (MBI): This scale is used to determine levels of burnout in nurses (Maslach et al., 2001). It is a well-known 22-item self-report measurement of burnout. The scores on the subdimensions of the scale are 0–36 for emotional exhaustion, 0–20 for depersonalization, and 0–32 for personal accomplishment. The cut-off points for low, moderate and high risk were respectively 0–11, 12–17, and ≥18 for emotional exhaustion, 0–5, 6–9 and ≥10 for depersonalization, and ≥26, 22–25 and 0–21 for reduced personal accomplishment. Although it is conceptualized as a continuous variable, the three scores for each dimension cannot be combined into a single total score. Low personal accomplishment, high emotional exhaustion and high depersonalization indicate that an individual is experiencing burnout (Ergin, 1993).

Statistical analyses

Continuous variables are expressed as means ± SD, and categorical variables are expressed as percentages. Normal distribution of variables was evaluated by using the Shapiro-Wilk test. The baseline clinical and demographic characteristics of the groups were compared using chi-square or Fisher exact test for categorical data, and Student's *t* test, Mann-Whitney *U* test and one-way analysis of variance (ANOVA) were used for continuous variables. Post-Hoc analyses were performed where appropriate using Bonferroni correction. Relationships between variables were analyzed using Pearson correlation analyses. Correlations

were classified and interpreted according to Evans (1996): less than 0.20 is very weak, 0.20 to 0.39 is weak, 0.40 to 0.59 is moderate, 0.60 to 0.79 is strong and 0.80 or greater is a very strong correlation. For all tests, two-sided P values of < 0.05 were considered as significant. Statistical analysis was performed using the Statistical Package for the Social Sciences (SPSS) version 20.0 for Windows (SPSS Inc., Chicago, Illinois, USA).

Ethical considerations

This research was approved by the Scientific Research Ethics Committee with decision No 06/50 (No 2021-YÖNP-0212). Participation was voluntary, anonymous, and did not involve any compensation. Informed consent was obtained from all participants.

Results

Sociodemographic characteristics

Nurses included in the study had a mean age of 28.1 ± 5.8, mean professional experience of 6.3 ± 6.0 years, and mean ICU experience of 4.1 ± 4.1 years. Also, 77.4% were female, 67.8% were university graduates, 65.9% were single, and 77.0% did not have children. A majority had chosen nursing willingly, worked willingly in the ICU, worked in the internal medicine ICU, worked in a private hospital, and worked rotationally. The average number of working hours per week reported by the participants was 52.8 ± 10.2 h, and the mean number of patients to whom each nurse was providing care was reported as 3.3 ± 1.5 (Table 1). A majority had not had communication problems with patients' relatives, other health personnel, nurses or doctors (Table 2).

The level of risk of burnout and factors affecting the MBI subdimensions

In this study, the Cronbach's alpha values of the subdimensions of the MBI scale are 0.84 for emotional exhaustion, 0.69 for depersonalization and 0.79 for personal accomplishment. The nurses' mean MBI scores were 22.9 ± 8.3 for emotional exhaustion, 22.8 ± 4.6 for depersonalization, and 9.6 ± 4.5 for personal accomplishment. They reported emotional exhaustion and depersonalization at a high level, and personal accomplishment at a medium level (Table 1).

Depersonalization was significantly higher in the 20–29-year age group than in those aged 40 or more ($p < 0.001$). Depersonalization ($p = 0.02$) and decreased personal accomplishment ($p < 0.007$) were less in those with the greatest experience in the ICU than in those with the least experience. Depersonalization ($p = 0.001$) and decreased personal accomplishment ($p = 0.03$) were less in those with the greatest experience in the nursing profession than in those with one to 10 years of experience. The personal accomplishment of those with bachelor's degrees was lower than that of other graduates ($p = 0.001$). Depersonalization was higher in those with no children than in those with more than one child ($p = 0.004$). Emotional exhaustion was higher ($p < 0.001$) and decreased personal accomplishment ($p < 0.001$) was less in those with a low monthly income than in others. Emotional exhaustion ($p < 0.001$) and depersonalization ($p < 0.001$) were higher in those who had not chosen their profession willingly. Personal accomplishment was high in those who wished to work in the ICU ($p = 0.002$) and in those working in the surgical ICU ($p = 0.01$). Emotional exhaustion ($p < 0.001$, $p < 0.001$, $p < 0.001$ and $p = 0.003$ respectively) and depersonalization ($p < 0.001$, $p < 0.001$, $p < 0.001$ and $p < 0.001$ respectively) were less in those who had not experienced communication problems with doctors, nurses, and other health personnel (Table 2).

Factors affecting levels of perception of care quality, CBI and its subdimensions

In this study, the Cronbach's alpha value of the CBI-24 was 0.94. The nurses' levels of perception of care quality according to CBI-24 were high (5.4 ± 0.6). It was found that their highest score on the subdimensions was on knowledge and skills (5.6 ± 0.5), and the lowest was on connectedness (5.2 ± 0.7) (Table 1).

Knowledge and skills scores were higher in those aged 40 or more than in those in the 20–29-year age group, as also in those with the greatest number of years of professional experience compared with those with the least experience ($p = 0.01$). The mean score of respectfulness was high in those with a large number of working hours per week ($p = 0.03$). The mean connectedness score of those with a bachelor's degree was lower than that of vocational high school graduates or those with associate degrees ($p = 0.01$). The mean total CBI score was high in

Table 1
Socio-demographic and occupational characteristics, burnout levels and caring behaviours of the participating nurses (n = 460).

Age (years)	28.1 ± 5.8[1]
Sex	
Female	356 (77.4)[2]
Male	104 (22.6)
Level of education	
Vocational high school	63 (13.7)
Associate degree	45 (9.8)
Bachelor's degree	312 (67.8)
Master's degree	40 (8.7)
Marital status	
Married	157 (34.1)
Single	303 (65.9)
No of children	
None	354 (77.0)
1 child	62 (13.5)
>1 children	44 (9.6)
Monthly income	
Income < expenditure	141 (30.7)
Income = expenditure	261 (56.7)
Income > expenditure	58 (12.6)
Willing choice of nursing	313 (68.0)
Willingness to work in the ICU	290 (63.0)
Which ICU?	
Internal medicine ICU	364 (79.1)
Surgical ICU	96 (20.9)
Total years working in the ICU	4.1 ± 4.1
Total years of experience in the nursing profession	6.3 ± 6.0
Mean hours of work per week	52.8 ± 10.2
Mean number of patients per shift	3.3 ± 1.5
Employment status	
Tenured	180 (39.1)
Contract/private	280 (60.9)
Working arrangement	
Continuous daytime	48 (10.4)
Continuous night	22 (4.8)
Rotational (Daytime/Night)	390 (84.8)
Monitoring patients with COVID-19 infection	407 (88.5)
Having had COVID-19 infection	184 (40.0)
Having a chronic illness	85 (18.5)
Total CBI-24	5.4 ± 0.6
Assurance	5.4 ± 0.6
Knowledge and skills	5.6 ± 0.5
Respectfulness	5.4 ± 0.6
Connectedness	5.2 ± 0.7
MBI, emotional exhaustion and subgroups	22.9 ± 8.3
Low (0–11 points)	44 (9.6)
Medium (12–17 points)	76 (16.5)
High (≥18 points)	340 (73.9)
MBI, depersonalization and subgroups	22.8 ± 4.6
Low (0–5 points)	84 (18.3)
Medium (6–9 points)	136 (29.6)
High (≥10 points)	240 (52.2)
MBI, personal accomplishment and subgroups	9.6 ± 4.5
Low (≥26 points)	119 (25.9)
Medium (22–25 points)	184 (40.0)
High (0-21points)	157 (34.1)

[1] Mean ± SD.
[2] n (%); CBI-24, Caring Behaviours Inventory-24; MBI, Maslach Burnout Inventory.

Table 2
Factors affecting MBI subdimensions.

Variables	EE	p value	DP	p value	PA	p value
Age (years)						
20–29 (n = 339)	23.3 ± 8.4[1]		10.0 ± 4.4[1]		22.6 ± 4.8[1]	
30–39 (n = 88)	22.0 ± 7.5	0.13	8.9 ± 4.3	**<0.001**[3]	23.5 ± 4.1	0.10
≥40 (n = 33)	20.5 ± 8.4		7.1 ± 4.1		23.9 ± 3.6	
Time working in the ICU						
1–5 years (n = 346)	23.1 ± 8.3		9.8 ± 4.4		22.6 ± 4.7	
6–10 years (n = 70)	22.6 ± 8.4	0.58	9.7 ± 4.6	**0.02**[3]	23.1 ± 4.5	**0.007**[3]
11–15 years (n = 35)	22.5 ± 7.7		8.1 ± 4.5		24.0 ± 3.7	
16 years or more (n = 9)	19.4 ± 9.6		6.2 ± 5.2		27.2 ± 3,3	
Total experience in the nursing profession (years)						
1–5 years (n = 273)	23.1 ± 8.5		9.9 ± 4.3		22.4 ± 4.8	
6–10 years (n = 99)	23.5 ± 8.0	0.41	10.1 ± 4.8	**0.001**[3]	23.1 ± 4.6	**0.03**[3]
11–15 years (n = 48)	22.3 ± 7.2		8.2 ± 4.3		23.0 ± 3.6	
16 or more (n = 40)	21.0 ± 8.6		7.5 ± 4.4		24.6 ± 3.9	
Average working hours per week						
≤ 40 h (n = 81)	21.3 ± 8.0		9.0 ± 4.4		22.6 ± 4.0	
≥ 41 h (n = 379)	23.2 ± 8.3	**0.05**[2]	9.7 ± 4.5	0.21	22.9 ± 4.6	0.58
Average number of patients cared for per shift						
1–5 patients (n = 419)	23.0 ± 8.2		9.8 ± 4.4		22.9 ± 4.7	
≥ 6 patients (n = 41)	22.1 ± 8.9	0.50	7.7 ± 4.4	**0.005**[2]	22.6 ± 4.4	0.74
Level of education						
Vocational high school (n = 63)	21.8 ± 8.0		8.9 ± 3.7		23.6 ± 4.4	
Associate degree (n = 45)	27.1 ± 7.5	**0.002**[2]	11.0 ± 5.1	0.07	24.8 ± 4.7	**0.001**[2]
Bachelor's degree (n = 312)	22.7 ± 8.2		9.6 ± 4.4		22.3 ± 4.4	
Master's degree (n = 40)	21.0 ± 8.7		8.9 ± 4.7		23.9 ± 5.5	
Number of children						
None (n = 354)	23.2 ± 8.4		9.9 ± 4.4		22.7 ± 4.8	
1 child (n = 62)	21.6 ± 7.7	0.30	8.8 ± 4.1	**0.004**[3]	22.4 ± 3.8	0.11
>1 children (n = 44)	22.2 ± 7.5		7.9 ± 4.6		24.2 ± 3.9	
Monthly income						
Income < expenditure (n = 141)	25.6 ± 7.8[1]		10.0 ± 4.3		24.1 ± 4.2	
Income = expenditure (n = 261)	21.7 ± 8.0[1]	**<0.001**[3]	9.4 ± 4.4	0.34	22.2 ± 4.4	**<0.001**[3]
Income > expenditure (n = 58)	21.9 ± 9.2[1]		9.4 ± 5.1		22.6 ± 5.9	
Willing choice of nursing						
Yes (n = 313)	21.3 ± 8.1		9.0 ± 4.3		23.1 ± 4.8	
No (n = 147)	26.2 ± 7.6	**<0.001**[2]	10.8 ± 4.5	**<0.001**[2]	22.4 ± 4.3	0.15
Willingness to work in the ICU						
Yes/my choice (n = 290)	22.6 ± 8.0		9.6 ± 4.5		23.3 ± 4.6	
No (n = 170)		0.33		0.95		**0.002**[2]

Table 2 (*continued*)

Variables	EE	p value	DP	p value	PA	p value
	23.4 ± 8.7		9.6 ± 4.4		22.0 ± 4.5	
Which ICU?						
Internal medicine ICU (n = 364)	22.8 ± 8.5		9.6 ± 4.5		22.6 ± 4.5	
Surgical ICU (n = 96)	23.3 ± 7.5	0.56	9.5 ± 4.5	0.85	23.9 ± 4.9	**0.01**[2]
Communication problem with doctors						
Yes (n = 206)	25.6 ± 7.0		10.8 ± 4.0		22.7 ± 4.3	
No (n = 254)	20.7 ± 8.5	**<0.001**[2]	8.6 ± 4.6	**<0.001**[2]	22.9 ± 4.8	0.66
Communication problem with nurses						
Yes (n = 168)	26.9 ± 7.0		11.5 ± 3.9		22.6 ± 4.1	
No (n = 292)	20.6 ± 8.1	**<0.001**[2]	8.5 ± 4.4	**<0.001**[2]	23.0 ± 4.9	0.34
Communication problem with other health personnel						
Yes (n = 183)	25.8 ± 7.5		10.8 ± 4.0		22.3 ± 4.0	
No (n = 277)	21.0 ± 8.3	**<0.001**[2]	8.8 ± 4.6	**<0.001**[2]	23.2 ± 5.0	0.06
Communication problem with patients' relatives						
Yes (n = 119)	24.8 ± 7.6		11.1 ± 3.5		22.2 ± 4.0	
No (n = 341)	22.2 ± 8.4	**0.003**[2]	9.0 ± 4.6	**<0.001**[2]	23.1 ± 4.8	0.08

[1] Mean ± SD.
[2] Significant difference at $p < 0.05$.
[3] Bonferroni post-hoc analysis; value in bold: significant; EE, Emotional exhaustion; DP, Depersonalization; PA, Personal accomplishment; MBI, Maslach Burnout Inventory.

those who had experienced no communication problems with doctors, nurses, other health personnel or patients' relatives ($p = 0.01$, $p = 0.007$, $p = 0.002$ and $p = 0.001$ respectively) (Table 3).

Correlation between burnout level and caring behaviours.

The correlation between the nurses' emotional exhaustion and care behaviours was very weak ($r = -0.1$), and between depersonalisation and care behaviours it was weak ($r = -0.2$). A strong correlation was found only between personal accomplishment scores and total care behaviours ($r = 0.8$), indicating that high personal accomplishments scores correlate with good care behaviours (Table 4).

Discussion

In this study, emphasis was placed on the relationship between the factors which must be defined in order to determine solutions, burnout, and caring behaviours. Emotional exhaustion is the core component of burnout syndrome. It expresses a person's feelings of exhausting themselves and being exhausted by work. Depersonalization is the development of a detached attitude towards work and patient care (Maslach et al., 2001). The findings of this study show that they reported a high level of risk of exhaustion in the intensive care nurses participating in the study according to the sub-categories of emotional exhaustion and desensitisation. Tuncel et al. (2014) found high levels of risk of emotional exhaustion and depersonalization in ICUs. Similar results were reached in other studies (Alharbi et al., 2016; Torre et al., 2019). According to the Maslach burnout model, the depersonalization stage begins to manifest itself in the person during the burnout development process as the initially occurring emotional exhaustion advances (Maslach et al., 2001). For this reason, measures to prevent emotional exhaustion are important for depersonalization not to develop.

Caring behaviours, which are the basis of nursing practice, are important for quality nursing care (ten Hoeve et al., 2014). Burnout opens the way for nurses to lose respect and willingness for their profession, and causes them to display negative caring behaviours

Table 3
Factors affecting CBI-24 and subdimensions.

Characteristics	Assurance	p value	Knowledge and Skills	p value	Respectfulness	p value	Connectedness	p value	Total	p value
Age (Years)										
20–29 (n = 339)	5.3 ± 0.6[1]		5.6 ± 0.5[1]		5.4 ± 0.6[1]		5.2 ± 0.7[1]		5.3 ± 0.6[1]	
30–39 (n = 88)	5.4 ± 0.6	0.56	5.7 ± 0.5	**0.01**[3]	5.3 ± 0.7	0.86	5.2 ± 0.7	0.99	5.3 ± 0.8	0.69
≥40 (n = 33)	5.4 ± 0.6		5.8 ± 0.4		5.4 ± 0.6		5.2 ± 0.8		5.4 ± 0.5	
Total years in the nursing profession										
1–5 years (n = 273)	5.3 ± 0.6		5.5 ± 0.5		5.4 ± 0.6		5.2 ± 0.7		5.3 ± 0.6	
6–10 years (n = 99)	5.4 ± 0.5		5.6 ± 0.6		5.4 ± 0.6		5.1 ± 0.8		5.4 ± 0.6	
11–15 years (n = 48)	5.4 ± 0.7	0.37	5.7 ± 0.6	**0.01**[3]	5.4 ± 0.7	0.74	5.2 ± 0.7	0.71	5.3 ± 1.0	0.45
16 years or more (n = 40)	5.5 ± 0.6		5.8 ± 0.3		5.5 ± 0.6		5.2 ± 0.7		5.5 ± 0.5	
Hours worked per week										
≤ 40 h (n = 81)	5.4 ± 0.7		5.6 ± 0.6		5.2 ± 0.8		5.1 ± 0.8		5.3 ± 0.7	
≥ 41 h (n = 379)	5.4 ± 0.6	0.98	5.6 ± 0.5	0.60	5.4 ± 0.6	**0.03**[2]	5.2 ± 0.7	0.46	5.4 ± 0.6	0.81
Sex										
Female (n = 356)	5.3 ± 0.6		5.6 ± 0.5		5.4 ± 0.6		5.1 ± 0.7		5.3 ± 0.6	
Male (n = 104)	5.5 ± 0.5	**0.01**[2]	5.7 ± 0.5	0.19	5.4 ± 0.6	0.49	5.2 ± 0.8	0.63	5.4 ± 0.7	0.36
Level of education									5.5 ± 0.6	
Vocational high school (n = 63)	5.5 ± 0.5		5.6 ± 0.7		5.5 ± 0.7		5.3 ± 0.8		5.6 ± 0.3	
Associate degree (n = 45)	5.7 ± 0.4	**<0.001**[3]	5.9 ± 0.2	**<0.001**[3]	5.7 ± 0.4	**0.001**[3]	5.3 ± 0.5	**0.01**[3]	5.3 ± 0.7	**0.001**[3]
Bachelor's degree (n = 312)	5.3 ± 0.6		5.5 ± 0.5		5.3 ± 0.6		5.1 ± 0.6		5.5 ± 0.7	
Master's degree (n = 40)	5.4 ± 0.7		5.7 ± 0.7		5.4 ± 0.8		5.3 ± 0.7			
Marital status										
Married (n = 157)	5.3 ± 0.6		5.6 ± 0.6		5.3 ± 0.7		5.0 ± 0.8		5.2 ± 0.8	
Single (n = 303)	5.4 ± 0.6	0.21	5.6 ± 0.5	0.88	5.4 ± 0.6	**0.03**[2]	5.2 ± 0.7	**0.01**[2]	5.4 ± 0.5	**0.01**[2]
Willing choice of nursing										
Yes (n = 313)	5.4 ± 0.6		5.6 ± 0.5		5.4 ± 0.6		5.2 ± 0.7		5.4 ± 0.6	
No (n = 147)	5.3 ± 0.7	**0.008**[2]	5.6 ± 0.5	0.65	5.3 ± 0.6	0.22	5.1 ± 0.8	0.09	5.3 ± 0.7	0.07
ICU Internal medicine										
ICU (n = 364)	5.3 ± 0.6		5.6 ± 0.5		5.3 ± 0.6		5.1 ± 0.7		5.3 ± 0.7	
Surgical ICU (n = 96)	5.5 ± 0.6	**0.02**[2]	5.7 ± 0.4	0.09	5.5 ± 0.6	**0.02**[2]	5.3 ± 0.7	**0.04**	5.5 ± 0.5	**0.01**[2]
Having had COVID-19 infection										
Yes (n = 184)	5.3 ± 0.6		5.6 ± 0.6		5.3 ± 0.7		5.0 ± 0.7		5.3 ± 0.8	
No (n = 276)	5.4 ± 0.6	0.06	5.6 ± 0.5	0.35	5.4 ± 0.6	0.21	5.2 ± 0.7	0.06	5.4 ± 0.5	**0.03**[2]
Communication problem with doctors										
Yes (n = 206)	5.3 ± 0.6		5.5 ± 0.6		5.3 ± 0.7		5.1 ± 0.8		5.3 ± 0.7	
No (n = 254)	5.5 ± 0.6	**<0.001**[2]	5.6 ± 0.5	**0.02**[2]	5.4 ± 0.6	0.11	5.2 ± 0.7	**0.02**[2]	5.4 ± 0.6	**0.01**[2]
Communication problem with nurses										
Yes (n = 168)	5.2 ± 0.6		5.5 ± 0.5		5.3 ± 0.6		5.1 ± 0.7		5.2 ± 0.6	
No (n = 292)	5.5 ± 0.6	**<0.001**[2]	5.6 ± 0.6	**0.01**[2]	5.4 ± 0.6	0.06	5.2 ± 0.8	0.09	5.4 ± 0.6	**0.007**[2]
Communication problems with other health personnel										
Yes (n = 183)	5.2 ± 0.7		5.5 ± 0.6		5.3 ± 0.7		5.0 ± 0.8		5.2 ± 0.7	
No (n = 277)	5.5 ± 0.5	**<0.001**[2]	5.7 ± 0.4	**<0.001**[2]	5.4 ± 0.6	**0.006**[2]	5.2 ± 0.7	**0.001**[2]	5.4 ± 0.6	**0.002**[2]
Communication problem with patients' relatives										
Yes (n = 119)	5.2 ± 0.7		5.5 ± 0.5		5.2 ± 0.7		5.0 ± 0.8		5.2 ± 0.7	
No (n = 341)	5.4 ± 0.6	**<0.001**[2]	5.6 ± 0.5	0.10	5.4 ± 0.6	**0.009**[2]	5.2 ± 0.7	**0.01**[2]	5.4 ± 0.6	**0.001**[2]

[1] Mean ± SD.
[2] Significant difference at $p < 0.05$.
[3] Bonferroni post-hoc analysis; Mean ± SD, value in bold: significant; CBI-24, Caring Behaviours Inventory-24.

Table 4
Correlation between burnout level and caring behaviours.

		CBI-24 subscales				
MBI subscales		Assurance	Knowledge and skills	Respectfulness	Connectedness	Total
Emotional exhaustion	r	−0.1	−0.04	−0.1	−0.1	−0.1
Depersonalization	r	−0.2	−0.1	−0.2	−0.2	−0.2
Personal accomplishment	r	0.4	0.8	0.6	0.8	0.8

MBI, Maslach Burnout Inventory; CBI-24, Caring Behaviours Inventory-24; r: Pearson's correlation coefficient; value in bold: significant.

(Uchmanowicz et al., 2020). Also, a person who experiences emotional exhaustion and depersonalization feels inadequate with regard to work and personal relations. Motivation falls and inadequacy of control is experienced. The feeling of helplessness which occurs lowers personal accomplishment (Maslach et al., 2001). In this study, a strong correlation was found only between personal accomplishment and total care behaviours. For this reason, increasing levels of personal accomplishment in intensive care nurses is important for good quality nursing care. With increasing age, the increase in a nurse's professional experience is reflected positively in skills of coping with stress and personal accomplishments (Chuang et al., 2016). In those working in a profession which they do not want, a state of unhappiness and anger over time causes emotional exhaustion. When a solution cannot be found to this process, behaviours showing depersonalization such as unwillingness to work, being late for work and leaving the job may occur. It has been found in the literature that more burnout is experienced by those who did not choose the nursing profession or the clinic where they worked (Tuncel et al., 2014; Yılmaz and Arslan, 2017). Nurses in this study who had

chosen willingly to work in intensive care had a high personal accomplishment score. Care behaviours were at a good level in those who chose the profession willingly. Choosing the nursing profession willingly or preferring to work in the ICU can make it easier to adapt to difficult working conditions. However, this does not change the reality of the need to improve working conditions. Measures must be taken to preserve this willingness. Gormez et al. (2021) emphasized that improvement of working conditions was important for the protection of the mental health of intensive care nurses.

Personal accomplishment is defined as the ability to find solutions to problems and feeling self-sufficient. The presence of personal and institutional ideals and high motivation in the workplace increases personal accomplishment (Maslach et al., 2001). It was found in this study that the nurses' personal accomplishment scores were at a medium level, and that personal accomplishment scores not being at a low level had a positive effect on care behaviours. In addition, the personal accomplishment scores of those with bachelor's degrees were lower than the scores of other graduates. Low personal accomplishment is a part of burnout, and may be a risk for quality working. The difficulties of the pandemic period may make it impossible for those with bachelor's degrees to achieve their ideals in the difficult working conditions, and make them feel inadequate. In contrast to the present study, no significant difference was found in other studies between education level and exhaustion (Bruyneel et al., 2021a; Torre et al., 2019). Effective and reliable care are necessary for successful health service (Cerit and Coşkun, 2018). For this reason, nurses must have suitable knowledge and skills to meet physical, social and psychological care needs (Taylan et al., 2020). In our study, the total CBI score of associate degree holders was higher than that of those with bachelor's degrees. This may be related to the low personal accomplishments of bachelor's degree holders. Studies were accessed in the literature which found that education level did not affect caring behaviours (Erol and Turk, 2019), or that a high education level was significantly related to assurance, knowledge and skills and total caring behaviours (Taylan et al., 2020).

In studies examining caring behaviours, it has been found that professional experience, and having the highest score on the subdimension of knowledge and skills and the lowest on connectedness was important in nurses' knowledge and skills (Cerit and Coşkun, 2018; Erol and Turk, 2019; Kocatepe et al., 2017). Our findings support the literature. The subdimension of knowledge and skills comprises the display of professional and occupational knowledge and skills. With increasing age, greater experience is positively reflected in knowledge and skills. The connectedness subdimension shows whether the nurse is optimistic and always available to help his/her patients (Maslach et al., 2001). The fact that the intensive care nurses had the lowest scores on the dimension of dependency may be because their depersonalization scores were high. Young nurses working in the ICU without enough experience have no defense against burnout (Bruyneel et al., 2021a; Chuang et al., 2016; Kim and Yeom, 2018). In our study, those without children expressed a higher rate of depersonalization than those who had children. Similar results were seen in the literature (Arpacıoğlu et al., 2021; Bruyneel et al., 2021a; Chuang et al., 2016; Yılmaz and Arslan, 2017). Those without children are likely to be young and in their first years in the profession, and this may be the reason why they do not have the experience to manage stress, and experience more depersonalization.

Improving the work environment for nurses may lead to lower levels of job dissatisfaction, intention to leave, and burnout. It is also important for providing better care (Nantsupawat et al., 2017; Aiken et al., 2017). In contrast to the literature (Chuang et al., 2016; Hu et al., 2020), the risk of exhaustion showed no significant difference according to the working arrangements stated by the intensive care nurses who participated in the study. This may be because in the pandemic, similar work conditions are experienced. The ICU work climate might also contribute to burnout, given that ICUs are where patients with the most severe conditions are admitted. The process of monitoring end-of-life care patients in the ICU may cause emotional exhaustion, resulting in burnout (Chuang et al., 2016; Kim and Yeom, 2018; Ntantana et al., 2017). Being a nurse in the pandemic means facing negative work conditions and workload, resulting in burnout (Hu et al., 2020; Bruyneel et al., 2021b; Hoogendoorn et al., 2021). It is stated in the literature that emotional exhaustion was found to be high in those with a large number of working hours. Too many patients assigned to each nurse may carry a risk of emotional exhaustion and depersonalization (Bruyneel et al., 2021a; Torre et al., 2019). However, depersonalization was higher in our study in those with a small number of patients. It is possible that nurses with a large number of patients develop resistance to burnout.

Depersonalization is the process of entering into negative and fixed attitudes to colleagues and patients, and becoming unresponsive to work. This can cause problems with communication. Burnout reduces the quality of ICU team communication, leading to lower quality of care (Galletta et al., 2016). Burnout can cause disregard for ethical care behaviours. It is known that working conditions where there is no communication problem increases nurses' motivation, allowing the possibility of better and safer care provision (Uchmanowicz et al., 2020). A hopeful point of our study was that emotional exhaustion and depersonalization were low in those who had not experienced communication problems with doctors, nurses, other health personnel or patients' relatives. Thus, caring behaviour scores were high in those who had not experienced communication problems. Effective communication is the key to ICU nurses' willingness to provide nursing care in the middle of the COVID-19 pandemic (Lord et al., 2021).

Limitations

A limitation of this study is that this is a survey and as such is prone to selection bias. Other limitations are that factors which could affect burnout and caring behaviours, such as the number of patients cared for and working hours, were reported by the participants themselves, and that there might be other factors not analyzed in this study, such as depression, anxiety or perception of workload, which could affect the risk of burnout. Finally, this study only reports univariate analyses. As one can assume that many of the covariates have a substantial overlap, our data must be interpreted with caution.

Conclusions

In this study, we found that intensive care nurses had high scores for emotional exhaustion and depersonalization, and a moderate level of scores for personal accomplishment. A strong correlation was found between their personal accomplishment scores and their total care behaviours. As the nurses' personal accomplishment score increased, their care quality perception levels also increased. Interventions to this purpose are the key to increasing job satisfaction in nurses and to the provision of better quality care. Assessment of burnout in critical care nurses at regular intervals will be of benefit in developing effective coping strategies. Future studies should investigate possible personal and environmental risk factors relating to intensive care nurses' risk of burnout and care behaviours, and should try to demonstrate a causal relationship.

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CRediT authorship contribution statement

Sevda Efıl: Conceptualization, Methodology, Investigation, Writing – original draft, Writing – review & editing. **Sevda Turen:** Investigation, Resources, Writing – review & editing. **Meryem Yıldız Ayvaz:** Investigation, Resources, Writing – review & editing. **Elif Bulbul:** Investigation, Resources, Writing – review & editing. **Tugba Yenı:** Investigation, Resources, Writing – review & editing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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