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Nursing practice environment, safety climate and burnout in antineoplastic treatment units

Ambiente de prática de enfermagem, clima de segurança e burnout em unidades de tratamento antineoplásico

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ABSTRACT
Objective: to evaluate the influence of the practice environment on the safety climate and burnout domains of nursing professionals in antineoplastic treatment units. **Methods:** this is a cross-sectional study conducted in four health institutions with 59 nursing professionals. The Safety Attitudes Questionnaire, Practice Environment Scale, Maslach Burnout Inventory (Brazilian versions), and a sociodemographic questionnaire were applied. Analysis of Variance, Student's t-test, Chi-Squared and Fisher's Exact tests were used in the analysis, considering $p<0.05$. **Results:** a favorable practice environment in the doctor-nurse collegial relations domain was a predictor of lower exhaustion levels (burnout domain), associated with professional category ($p=0.011$), experience time ($p=0.021$) and employment relationship ($p=0.023$). The nurses' participation domain in hospital affairs demonstrated a significant influence on the safety climate. **Conclusion:** the nursing practice environment, especially the doctor-nurse collegial relations and participation in hospital affairs, has a significant influence on the safety climate and burnout domains of nursing in antineoplastic treatment units. **Contributions to practice:** providing positive practice environments and collaborative relationships between nursing professionals and physicians favors the safety climate and prevents burnout, which are fundamental to the quality of care provided.
Descriptors: Nursing; Working Conditions; Patient Safety; Oncology Service, Hospital; Burnout, Professional.

RESUMO
Objetivo: avaliar a influência do ambiente de prática no clima de segurança e nos domínios de burnout de profissionais de enfermagem em unidades de tratamento antineoplásico. **Métodos:** estudo transversal realizado em quatro instituições de saúde com 59 profissionais de enfermagem. Foram aplicados *Safety Attitudes Questionnaire*, *Practice Environment Scale*, Inventário de Burnout de Maslach, versões brasileiras; e questionário sociodemográfico. Na análise, adotou-se Análise de Variância, t-Student, Qui-Quadrado e Exato de Fisher, considerando $p<0,05$. **Resultados:** o ambiente de prática favorável, no domínio Relações colegiais médicos-enfermeiros, foi preditor de menores níveis de Exaustão (domínio do burnout), associado a categoria profissional ($p=0,011$), tempo de experiência ($p=0,021$) e vínculo ($p=0,023$). O domínio participação dos enfermeiros nos assuntos hospitalares demonstrou influência significativa no clima de segurança. **Conclusão:** o ambiente de prática de enfermagem, especialmente as relações colegiais médicos-enfermeiros e a participação nos assuntos hospitalares, exerce influência significativa sobre o clima de segurança e os domínios de burnout da enfermagem em unidades de tratamento antineoplásico. **Contribuições para a prática:** proporcionar ambientes de prática positivos e relações colaborativas entre profissionais de enfermagem e médicos favorece o clima de segurança e previne o burnout, fundamentais para a qualidade da assistência prestada.
Descritores: Enfermagem; Condições de Trabalho; Segurança do Paciente; Serviço Hospitalar de Oncologia; Esgotamento Profissional.

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Introduction

A favorable nursing practice environment and a positive safety climate are linked to job satisfaction and patient protection. This involves healthy relationships among professionals, ongoing support from leaders, and fair distribution of tasks across shifts. In addition, it is essential that the workload is compatible with the demands of the team, providing enough time to adequately meet the needs of patients, thereby allowing them to exercise autonomy and opportunities for professional growth[1].

The nursing practice environment is also associated with a reduction in patient mortality in the hospital context. Changing this mortality condition requires leaders to make an effort to ensure adequate nursing staff in terms of quantity and qualifications, with evidence-based practices, increasing nurses' participation in decision-making, encouraging healthy relationships between them and the entire health team, and building a culture focused on providing high-quality care[2].

In this sense, the relationship between the professional practice environment and the safety climate has been investigated in different scenarios and contexts of nursing practice, such as in Pediatrics, Critical Care, and Primary Care[3-5]. It was identified that support for nurses, nursing manager capacity and leadership were specific attributes and predictors of safety climate during the COVID-19 pandemic[6].

The environments specifically in the Oncology and Hematology areas have demonstrated a significant impact on the practice of professionals. The six domains evaluated in the practice environment (workload, leadership, collegial relations, nurse participation in decision-making, quality fundamentals and resources) significantly impacted nurses' job satisfaction, psychological well-being, burnout levels and intention to leave the area/profession. Negative elements of the practice environment were associated with higher job dissatisfaction levels, higher burnout levels, higher prevalence of psychological distress and greater intention to leave oncology and hematology nursing and the nursing profession[7].

The analysis of the effects of the nursing practice environment and self-leadership was based on person-centered care. A total of 145 nurses working in oncology wards of eight university hospitals were evaluated. The results revealed that person-centered care presents a significant correlation with both the nursing practice environment and the self-leadership of professionals[8].

Furthermore, a strong positive correlation was identified between the quality of the work environment in nursing practice and patient outcomes[9]. These findings reinforce the importance of investigating and improving working conditions and individual skills to enhance the healthcare quality.

Furthermore, burnout syndrome at work is related to a high level of emotional exhaustion, accompanied by depersonalization and low personal accomplishment. The safety climate was considered positive, with the "safe behaviors" domain presenting a higher average. Also, a relationship was found between safety climate and burnout in the "stress perception" and "depersonalization" dimensions, which can hinder the bond and increase the distance between the professional and the patient[10].

In view of the above, it is essential to broaden understanding on the factors which can contribute to burnout syndrome in nursing workers, and to assist them in constructing preventive and intervention measures that aim to prevent early burnout in oncology treatment services.

Thus, the present study aimed to evaluate the influence of the practice environment on the safety climate and burnout domains of nursing professionals in antineoplastic treatment units.

Methods

This is a cross-sectional study conducted with nursing professionals working in the Oncology area of four healthcare institutions, specifically in antineoplastic treatment units.

According to data from the institutions, 67 nursing professionals worked in these units during the data collection period from January 2020 to December 2021, including 18 nurses and 49 nursing technicians. Thus, the sample was composed of the entire population.

The inclusion criteria adopted were: working in patient care during administration of antineoplastic drugs in outpatient and/or hospital units; and an experience period equal to or greater than three months in the research unit. The exclusion criteria considered were: nurses who held managerial functions (supervisors, coordinators, managers) in addition to providing care, so that there would be no bias in relation to positioning professionals' participation in management and decision-making in the units; and professionals on leave, vacation or absence of any nature.

The following instruments were applied: a) Sociodemographic and professional questionnaire to collect data related to age, sex, marital status, category (nurse, nursing technician or assistant), time since graduation, time working in the unit, weekly workload, work shift/regime and type of employment relationship statutory, consolidated by labor law or cooperative); b) Practice Environment Scale (PES), a scale used to assess the nursing practice environment (favorable environments x unfavorable environments) [11]; c) Safety Attitudes Questionnaire - Short Form 2006 (SAQ) – Brazilian version[12] to assess the presence of favorable attitudes towards patient safety in antineoplastic treatment units and the safety climate perception; d) Maslach Burnout Inventory (MBI)[13], to assess the presence of burnout. All instruments have versions translated and validated for Portuguese.

The scores for the subscales in the analysis of the PES scale (which consists of 24 items distributed in 5 subscales) should be obtained by averaging the scores of the subjects' responses. Scores with values of 2.5 can be interpreted as a neutral point. The environment is considered favorable to professional practice above this point, as it reflects the agreement that the characteristics described are present in the environment in which the professional performs their activities. The PES therefore makes it possible to classify practice environments as favorable, mixed, and unfavorable[11].

The SAQ contains 41 items divided into six domains. The final score comprises values between 0 (zero), considered the worst perception, and 100 as the best perception. Scores equal to or above 75 reflect a positive perception of the safety climate[12].

The MBI used has 18 items, distributed in three subscales: Emotional Exhaustion (7 items), Personal Accomplishment (6 items) and Depersonalization (5 items). In this Scale, the Emotional Exhaustion subscale classifies the value ≤ 19 as low, values in the range > 19 and ≤ 21 as moderate, and the value > 21 as high. The Personal Accomplishment subscale has an inverse score, with a high level for a value ≥ 25; moderate for values ≥ 18 and < 25; and low for values < 18. The Depersonalization subscale considers a value ≤ 11 as low; moderate for a value between > 11 and < 15; and high for a value > 15[13].

The list of professionals from all units and shifts of the four institutions was provided by the respective managers, with information about the time worked in the unit, absences, vacations and sick leave. After applying the criteria, the professionals were approached at their work units. All subjects who met the inclusion criteria were invited to participate in the study, and those who accepted received the questionnaires in envelopes.

The instruments for the in-person collection method were self-administered and the participants were free to respond at the time and place that was most convenient for them. In cases where the instruments presented incomplete answers, the subjects were asked to respond if they wished on the day of delivery. This check ensured a greater number of fully completed instruments.

In light of the COVID-19 pandemic, in 2020, the online data collection method was included by sending an Informed Consent Form and a Google Forms form. This method included virtual social networks,

using WhatsApp groups and email lists linked to the researcher.

The data were subsequently tabulated in Microsoft Excel® and processed in SPSS 20.0 with presentation of absolute and relative frequencies, means and standard deviations of the assertions and their domains/subscales. An analysis of the association of the PES scale and subscales according to the sociodemographic variables was performed using the Chi-squared, likelihood ratio and Fisher's exact tests.

The comparison of the means according to the sociodemographic and occupational variables for the SAQ scale and its subscales was done using the Student's t-test and Analysis of Variance (ANOVA). A comparison of the proportions of the high, medium and low categories within each burnout domain was done using the Chi-squared test for a single variable. Next, association tests were applied between the sociodemographic/occupational variables and the PES to understand the relationship between the participants' profile and perception of the practice environment, which categorizes the environment as favorable or unfavorable to professional practice. The intersections of these domains with the sociodemographic variables were analyzed using ANOVA, Chi-squared and likelihood ratio tests, considering $p < 0.05$.

Multiple linear regression (forward method) was then performed for the bivariate analysis to verify to what extent the subscales that assess the nursing practice environment characteristics indicated in the PES influenced the MBI domains and the safety climate.

The project was approved by the Research Ethics Committee of the Federal University of Ceará, under number 4,853,123/2021 and Certificate of Presentation of Ethical Appreciation 22914619.1.0000.5054.

Results

The study sample consisted of 59 nursing professionals, 17 nurses and 42 nursing technicians. There was a low frequency of an "unfavorable" assessment of the practice environment when compared with the sociodemographic and occupational variables (Table 1).

Table 1 – Distribution of the number of participants according to sociodemographic/occupational variables and assessment of the professional practice environment in antineoplastic treatment units (n=59). Fortaleza, CE, Brazil, 2020

Variables	Practice environment		p-value
	Unfavorable f (%)	Favorable f (%)	
Sex			
Female	2 (3.7)	52 (96.3)	0.237*
Male	1 (20.0)	4 (80.0)	
Age range (years)			
20 – 29	–	16 (100.0)	
30 – 39	–	20 (100.0)	0.116†
40 – 49	2 (13.3)	13 (86.6)	
50 – 57	2 (12.5)	7 (87.5)	
Category			
Nurse	1 (5.9)	16 (94.1)	0.647†
Nursing technician	2 (4.8)	40 (95.2)	
Civil status			
Married	1 (3.6)	27 (96.4)	0.539†
Not married	2 (6.5)	29 (93.5)	
Professional training			
Undergraduate	–	7 (100.0)	0.720†
Post-graduate	1 (5.6)	17 (94.4)	
Time since graduating (years)			
2-6	–	13 (100.0)	
7-10	1 (5.0)	19 (95.0)	0.326*
11-19	2 (11.8)	15 (88.2)	
20-38	–	9 (100.0)	
Experience time (years)			
1-5	–	14 (100.0)	
6-9	–	22 (100.0)	0.033*
10-20	3 (20.0)	12 (80.0)	
21-38	–	8 (100.0)	
Work shift			
Morning	3 (10.3)	26 (89.7)	
Afternoon	–	25 (100.0)	0.109*
Night	–	5 (100.0)	
None	1 (5.3)	18 (94.7)	
Type of employment relationship			
Consolidated by labor law	3 (7.7)	36 (92.3)	
Cooperative	–	12 (100.0)	0.058*
Statutory	–	8 (100.0)	
Weekly workload (hours)			
12-40	1 (5.9)	16 (94.1)	
42-60	1 (3.3)	29 (96.7)	0.720*
68-92	–	6 (100.0)	

*Likelihood ratio; †Fisher's exact test

It was noted that there were no significant differences in the evaluation of the practice environment according to most of the sociodemographic and occupational variables, with a significant difference only for the experience time variable (p=0.033), in which only among professionals with 10 to 20 years of experience there was an unfavorable evaluation of the practice environment. Men evaluated the safety climate more positively in relation to women (p=0.036) (Table 2).

Table 2 – Comparison of means and standard deviations of the safety climate of the Safety Attitudes Questionnaire - Short Form 2006 – Brazilian version according to sociodemographic/occupational variables (n=59). Fortaleza, CE, Brazil, 2020

Variables	Mean ± Standard deviation	p-value*
Sex		
Female	69.8 ± 12.8	0.036
Male	82.5 ± 10.6	
Age range (years)		
20 – 29	70.1 ± 12.8	
30 – 39	72.7 ± 13.1	0.847
40 – 49	72.7 ± 13.1	
50 – 57	67.8 ± 14.5	
Civil status		
Married	68.9 ± 13.6	0.273
Not married	72.7 ± 12.6	
Category		
Nurse	72.0 ± 14.1	0.679
Nursing technician	70.5 ± 12.8	
Training (nurses)		
Undergraduate	78.2 ± 20.6	0.284
Post-graduate	70.7 ± 12.9	
Time since graduating (years)		
2 – 6	74.4 ± 11.3	
7 – 10	70.3 ± 13.3	0.635
11 – 19	71.1 ± 15.0	
20 – 38	67.0 ±12.1	
Experience time in area (years)		
1 – 5	74.4 ± 11.6	
6 – 9	69.0 ± 13.1	0.525
10 – 20	72.3 ± 14.8	
21 – 38	67.2 ± 12.9	
Work shift		
Morning	66.7 ± 13.8	
Afternoon	74.8 ± 11.9	0.053
Night	75.7 ± 7.9	
Type of employment relationship		
Consolidated by labor law	72.2 ± 12.1	
Cooperative	65.8 ± 15.6	0.326
Statutory	72.3 ± 13.8	
Weekly workload (hours)		
12 – 40	68.8 ± 15.8	
42 – 60	71.3 ± 11.8	0.327
68 – 92	78.4 ± 13.8	

(The Table 2 continue...)

Type of employment relationship		
Consolidated by labor law	72.2 ± 12.1	
Cooperative	65.8 ± 15.6	0.326
Statutory	72.3 ± 13.8	
Weekly workload (hours)		
12 – 40	68.8 ± 15.8	
42 – 60	71.3 ± 11.8	0.327
68 – 92	78.4 ± 13.8	

*ANOVA

From the application of the Burnout Inventory, it was possible to analyze how the three burnout syndrome domains manifested themselves among the participants, with moderate emotional exhaustion and depersonalization levels in more than half of the sample, but with moderate to high personal accomplishment (Table 3).

Table 3 – Distribution of the number of participants according to the domains of the Maslach Burnout Inventory (n=59). Fortaleza, CE, Brazil, 2020

Domain	Burnout level			p-value
	Low f (%)	Moderate f (%)	High f (%)	
Emotional exhaustion	19(32.8)*	30 (51.7)†	9 (15.5)‡	0.003
Depersonalization	1 (1.7)*	35 (60.3)†	22 (37.9)‡	<0.0001
Personal accomplishment	3 (5.2)*	24 (41.4)†‡	31 (53.4)‡	<0.0001

*,†,‡By post hoc test, same symbols, same proportions and different symbols, different proportions

Regarding the Emotional Exhaustion domain, Table 4 showed a significant statistical association with professional category (p=0.011), experience time (p=0.021) and employment relationship (p=0.023). Longer experience time and being a civil servant with a statutory employment relationship were associated with lower emotional exhaustion levels. It was also found that nurses presented more moderate emotional exhaustion when compared to nursing technicians.

The analyses revealed significant associations between the Emotional Exhaustion domain and the experience time and employment relationship variables. In addition, a significant difference was observed in the Depersonalization dimension in relation to gender and employment relationship (p=0.004).

Table 4 – Distribution of the number of participants according to sociodemographic/occupational variables and burnout assessment (n=59). Fortaleza, CE, Brazil, 2020

Variables	Emotional exhaustion			Depersonalization			Personal accomplishment		
	Low	Moderate	High	Low	Moderate	High	Low	Moderate	High
	f (%)	f (%)	f (%)	f (%)	f (%)	f (%)	f (%)	f (%)	f (%)
Sex									
Female	19 (35.8)	25 (47.2)	9 (17.0)	–	33 (62.3)	20 (37.7)	3 (5.7)	22 (41.5)	28 (52.8)
Male	–	5 (100.0)	–	1 (20.0)	2 (40.0)	2 (40.0)	–	2 (40.0)	3 (60.0)
p-value		0.078*			0.004*			0.848*	
Age range (years)									
20 – 29	4 (26.7)	6 (40.0)	5 (33.3)	–	7 (46.7)	8 (53.3)	2(13.3)	2 (20.0)	10 (66.7)
30 – 39	5 (25.0)	11 (55.0)	4 (20)	–	13 (65.0)	7 (35.0)	1(5.0)	10 (50.0)	9 (45.0)
40 – 49	6 (40.0)	9 (60.0)	–	1 (6.7)	8 (55.3)	6 (40.0)	–	9 (60.0)	6 (40.0)
50 – 57	4 (50.0)	4 (50.0)	–	–	7 (87.5)	1 (12.5)	–	2(25.0)	6 (75.0)
p-value		0.067†			0.320†			0.137†	
Category									
Nurse	2 (11.8)‡	14 (82.4)§	1(5.9)‡,§	–	6 (35.3)‡	11(64.7)§	–	8 (47.1)	9 (52.9)
Nursing technician	17 (41.5)	16 (39.0)	8 (19.5)	1(2.4)	29 (70.7)	11 (26.8)	3(7.3)	16 (39.0)	22 (53.7)
p-value		0.011*			0.024*			0.489*	
Civil status									
Married	8 (28.6)	18 (64.3)	2 (7.1)	–	19 (67.9)	9(32.1)	1(3.6)	12 (42.9)	15 (53.6)
Not married	11 (36.7)	12 (40.0)	7 (23.3)	1(3.3)	16 (53.3)	13(43.3)	2(6.7)	12 (40.0)	16 (53.3)
p-value		0.111*			0.383*			0.862*	
Professional training									
Undergraduate	3 (42.9)	4 (57.1)	–	1 (14.3)	4 (57.1)	2 (28.6)	1 (14.3)	2 (28.6)	4 (57.1)
Post-graduate	3 (16.7)	14 (77.8)	1 (5.6)	–	8 (44.4)	10 (55.6)	–	10 (55.6)	8 (44.4)
p-value		0.345*			0.173*			0.173*	
Time since graduating (years)									
2-6	3 (25.0)	6 (50.0)	3 (25.0)	–	5 (41.7)	7 (58.3)	2 (16.7)	5 (41.7)	5 (41.7)
7-10	8 (40.0)	9 (45.0)	3 (15.0)	–	10 (50.0)	10 (50.0)	1 (5.0)	8 (40.0)	11 (55.0)
11-19	2 (11.8)	12 (70.6)	3 (17.6)	1 (5.9)	13 (76.5)	3 (17.6)	–	7 (41.2)	10 (58.8)
20-38	6 (66.7)	3 (33.3)	–	–	7 (77.8)	2 (22.2)	–	4 (44.4)	5 (55.6)
p-value		0.078†			0.146†			0.533†	
Experience time (years)									
1-5	2 (15.4)‡	6 (46.2)‡	5(38.5)§	–	6 (46.2)	7 (53.8)	2 (15.4)	4 (30.8)	7 (53.8)
6-9	8 (36.4)	11 (50.0)	3 (13.6)	8 (36.4)	11 (50.0)	3 (13.6)	1 (4.5)	12 (54.5)	9 (40.9)
10-20	3 (20.0)	11 (73.3)	1 (6.7)	3 (20.0)	11 (73.3)	1 (6.7)	–	4 (26.7)	11 (73.3)
21-38	6 (75.0)	2 (25.0)	–	6 (75.0)	2 (25.0)	–	–	4 (50.0)	4 (50.0)
p-value		0.021†			0.503†			0.233†	
Work shift									
Morning	5 (17.9)	18 (64.3)	5 (17.9)	5 (17.9)	18 (64.3)	5 (17.9)	–	11 (39.3)	17 (60.7)
Afternoon	12 (48.0)	11 (44.0)	2 (8.0)	12 (48.0)	11 (44.0)	2 (8.0)	2 (8.0)	11 (44.0)	12 (48.0)
Night	2 (40.0)	1 (20.0)	2 (40.0)	2 (40.0)	1 (20.0)	2 (40.0)	1 (20.0)	2 (40.0)	2 (40.0)
None	8 (42.1)	9 (47.4)	2 (10.5)	8 (42.1)	9 (47.4)	2 (10.5)	1 (5.3)	9 (47.4)	9 (47.4)
p-value		0.066*			0.675†			0.276†	
Type of employment relationhip									
Consolidated by labor law	11(28.9)‡	18 (47.4)‡	9(23.7)§	11(28.9)‡	18(47.4)‡	9 (23.7)§	2 (5.3)	13 (34.2)	23 (60.5)
Cooperative	3 (25.0)	9 (75.0)	–	3 (25.0)	9 (75.0)	–	1 (8.3)	7 (58.3)	4 (33.3)
Statutory	5 (62.5)	3 (37.5)	–	5 (62.5)	3 (37.5)	–	–	4 (50.0)	4 (50.0)
p-value		0.023†			0.049†			0.433†	
Weekly workload (hours)									
12-40	6 (35.3)	10 (58.8)	1 (5.9)	6 (35.3)	10 (58.8)	1 (5.9)	–	8 (47.1)	9 (52.9)
42-60	7 (24.1)	14 (48.3)	8 (27.6)	7 (24.1)	14 (48.3)	8 (27.6)	1 (3.4)	10 (34.5)	18 (62.1)
68-92	2 (33.3)	4 (66.7)	–	2 (33.3)	4 (66.7)	–	–	4 (66.7)	2 (33.3)
p-value		0.183†			0.51†			0.512†	

*Chi-squared; †Likelihood ratio; ‡,§By post hoc test, same symbols, same proportions and different symbols, different proportions

A multivariate analysis of the data was performed considering the PES levels as an independent variable, and the SAQ values and the Burnout Inventory domains as dependent variables. The results indicated that only subscale 5 (doctor-nurse collegial relationship) exerted a significant influence on the Emotional exhaustion [F(1, 57) = 10.719; p = 0.002; adjusted R^2 = 0.144] (Table 5) and Personal accomplishment domains [F(1, 57) = 18.196; p = 0.000; adjusted R^2 = 0.232] (Table 5).

Table 5 – Predictor variables of the Practice Environment Scale for emotional exhaustion and professional achievement. Fortaleza, CE, Brazil, 2020

Predictors	Standardized coefficients			
	Beta	t	Sig.	R^2
Emotional exhaustion				
Constant	–	6.893	0.000	–
Collegial relations between doctors and nurses	-0.398	-3.274	0.002	0.144
Personal accomplishment				
Constant	–	5.079	0.000	–
Collegial relations between doctors and nurses	0.354	2.859	0.006	0.110

Thus, for each one-point increase in the standard deviation of the scores on subscale 5 (doctor-nurse collegial relations), there is a 0.398-point reduction in the standard deviation of Emotional Exhaustion. In other words, the better the score on collegial relations, the lower the emotional exhaustion levels.

Regarding Personal Accomplishment, for each one-point increase in the standard deviation of subscale 5 (doctor-nurse collegial relations), there is a 0.354-point increase in the standard deviation of personal accomplishment.

A significant influence of subscale 1 (participation in hospital affairs) was found regarding the influence of the professional practice environment (PES) on the safety climate (SAQ) [F(1, 56) = 18.196 p=0.000; Adjusted R^2 = 0.232)] with a Beta of 0.495, thus demonstrating that each increase of one standard deviation in the subscale is related to an increase of 0.495 in the safety climate, favoring patient safety.

Discussion

The dissatisfaction of nursing workers over the years is a result of a combination of factors that are typical of the professional practice, such as work overload due to inadequate staffing and long working hours. These factors compromise social interaction, especially family life, and reduce the support network, which makes the professional more vulnerable to developing diseases such as burnout[14].

The combination of factors such as inadequate work structure (physical and personnel), lack of autonomy and lack of recognition in multidisciplinary relationships, and especially with management, lead professionals to become dissatisfied, overworked and unproductive, being vulnerable to exhaustion and depersonalization[15]. However, this reality was not evident in the present sample. Nevertheless, even with a positive scenario in relation to activity performance in the Oncology area, it is necessary to constantly address the possible repercussions of burnout on the performance of these professionals.

The comparison of averages attributed to the safety climate with the categories of sociodemographic and occupational variables shows that men evaluate the safety climate differently than women[16], corroborating the results found.

Another variable with a significant association with the safety climate is the work shift. Professionals who work at night expressed a positive perception of the safety climate, to the detriment of those who work in the morning and afternoon. The night shift is characterized by positive aspects related to greater access by nurses to patient records, less direct patient care, in addition to flexible hours, allowing for a dual employment relationship[17].

This positive perception of the work environment of nursing professionals working night shifts can be associated with a reduction in stimuli present in the units where they work, such as: a reduction in the number of professionals present in the sectors, especially with regard to unit managers, since they work in person during the day shifts. Night shift professio-

nals also do not have direct intervention from management, which may raise the issue of a possible reduction in demands and possible reprimands during this work shift.

Multilevel factors (organization, group and individual) play a critical role in predicting individual risk perceptions. Organizations need to implement a variety of programs which improve their safety climate to reduce the risk perception related to unsafe behaviors and accidents, and which go beyond simple safety-related education and training. At the same time, they need to find ways to promote safety leadership behaviors among supervisors, such as site visits, safety communication, among others. Furthermore, it is necessary to adjust the speed and amount of work and allocate tasks considering the ability and capacity of employees to reduce the workload and consequently reduce the perception of risk[18].

The results also indicate that the professionals in this study have a low level of burnout syndrome, because despite the moderate emotional exhaustion and depersonalization levels, personal accomplishment was moderate to high for most of the sample. It is worth noting that the burnout level is considered high only when the first two domains have high levels and personal accomplishment is low[19].

It is known that professional practice with full attention is compromised by the presence of exhaustion, whether emotional or physical, therefore reducing this fatigue is essential to promote the emotional well-being of nurses and the environment in which they are inserted, promoting safety and quality care for patients[20]. This exhaustion is related to the routine of these professionals who find themselves in stressful situations both due to the clinical care of patients and the disorders generated in the relationships of the multidisciplinary team involved in the care process.

One fact which drew attention regarding Emotional Exhaustion concerns the significant statistical association of this burnout domain with the experience time and employment relationship variables. Increased experience time and being a statutory employee resulted in lower emotional exhaustion levels. This result corroborates the findings of another study with intensive care nursing workers which identified the following as predictors associated with burnout: age, marital status, type of professional relationship, length of service time at the institution, working overtime, frequently working double shifts, having another paid job, workload, being a smoker and being an alcoholic. Professionals in the aforementioned study with a permanent contract and with more than 15 years of experience presented much lower burnout levels when compared to those hired and with less experience[21]. Levels of professional burnout were found among Portuguese, Spanish and Brazilian nurses, and more experienced participants with fixed shifts reported lower levels compared to younger professionals with rotating shifts. Age and professional experience were considered significant predictors of Personal Accomplishment, and consequently lower burnout levels[22].

The prevalence of burnout was significant among professionals performing their duties in the first three years of professional practice, and is related to cognitive dysfunction, depression or impaired sleep[23]. Developing burnout at the beginning of a career is a concern for the training of the professional workforce, presenting itself as a complex state that affects the well-being of professionals[24].

This predominance of burnout in individuals at the beginning of their careers may be associated with difficulties in dealing with the pressure imposed by the work environment present in the reality of these professionals, since daily nursing activities in most cases require professionals to act objectively, concisely and work directly with the patient, in addition to the work overload generated by other factors involved in the daily lives of professionals, which can in turn generate discomfort and dissatisfaction in exercising their functions.

The relationship between doctors and nurses is a topic in discussions about patient safety; however, even with the deepening of the subject, there are still conflicts which harm the nursing practice in a safe and healthy manner for professionals.

Autonomy, control over the work environment

and the relationship between nursing and medical staff were factors associated with work outcomes and the safety climate, and are thereby considered predictors. Nurses with greater autonomy, good working relationships and control over their work environment presented greater job satisfaction, which is associated with lower patient mortality, greater rescue success and better perceptions of care quality[25].

Furthermore, lack of communication, such as gossip, stood out as one of the main causes among the factors which contribute to the emergence of conflicts in teams. When individuals feel threatened by the attitudes of others, this can generate a hostile climate, harming coexistence and reducing relationship skills in the work environment, which results in dissatisfaction[26].

The nurses also highlighted issues regarding patient autonomy, nursing professionals' autonomy and justice, as well as situations such as failure to communicate the diagnosis to the patient and adoption of procedures without the necessary dialogue[27]. Teamwork with physicians was a preponderant factor in evaluating the quality of the environment for neonatology nurses[28].

There was a positive relationship between professional autonomy and physician-nurse collaboration[29] and physician-nurse collaboration was significantly related to patient safety indicators, because when they come together to use their skills and knowledge, they help to make treatment and care more effective. Furthermore, this collaboration is crucial for the ethical decision-making process, which requires a view from different areas[30].

In view of the above, it can be seen that the nursing team's perception of the quality of the practice environment, mainly manifested by the positive assessment of collegial relationships between doctors and nurses, favored perception of the patient safety climate in the units investigated and non-occurrence of burnout in the studied sample. Men evaluated the safety climate more positively than women, and Emotional Exhaustion was significantly associated with professional category, experience time, and employment relationship, with lower levels among professionals with more experience and statutory employment.

Study limitations

The study has some limitations which should be considered when interpreting the results. First, it is a cross-sectional study, which prevents a causal analysis of the observed associations, limiting understanding of the direction of the effects between the variables. Another limitation is the use of self-report instruments, such as the Maslach Burnout Inventory and the Safety Attitudes Questionnaire, which may be subject to response bias, such as the tendency of participants to underestimate or exaggerate their experiences. Finally, the study did not deeply explore factors external to the work environment, such as personal or family aspects, which can also influence the well-being and job satisfaction of health workers. The study also suffered limitations due to the resistance of private institutions to authorize the study, limiting the sample. Another limiting factor was the occurrence of a pandemic during the period in which data collection was conducted.

Contributions to practice

The data obtained provide resources for nursing management to direct actions specifically with the aim of acting in conjunction with the predisposition of these professionals to burnout regarding exercising their function in providing oncological care and promoting a favorable practice environment, and thus the teams working in oncological nursing can promote excellent and safe care for the target audience.

Conclusion

The practice environment, especially with regard to doctor-nurse collegial relationships and their participation in hospital affairs, exerts a significant influence on the well-being of nursing professionals, directly impacting lower Emotional Exhaustion levels

and greater Personal Accomplishment. In addition, factors such as experience time and employment relationship also play an important role in reducing emotional exhaustion. The study highlights the importance of a collaborative work environment and greater involvement in institutional decisions to promote a climate of safety and improve the quality of life of health professionals.

Authors' contributions

Conception and design or analysis and interpretation of data: Costa AFA, Fernandes AFC, Almeida PC. Writing of the manuscript or relevant critical review of intellectual content: Oliveira RM, Coelho MMF. Final approval of the version to be published: Costa AFA, Fernandes AFC, Oliveira RM, Coelho MMF, Almeida PC. Agreement to be accountable for all aspects of the manuscript related to its accuracy or integrity so that they are appropriately investigated and resolved: Costa AFA, Fernandes AFC.

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