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Differences in burnout aspects in Croatian nursing students - A cross-sectional study

Adriano Friganović[1,2,3], Snježana Čukljek[2,3], Sandra Bošković[3], Biljana Kurtović[2,3]*, Irena Kovačević[2,3], Marija Spevan[3], Josip Brusić[3,4], Kristian Civka[1,2]

[1]Department of Anaesthesiology, Reanimatology, Intensive Medicine and Pain Treatment, University Hospital Centre, Zagreb, Croatia, [2]Department of Nursing, University of Applied Health Sciences, Zagreb, Croatia, [3]Department of Nursing, Faculty of Health Studies, University of Rijeka, Rijeka, Croatia, [4]Department of Anaesthesiology, Reanimatology, Intensive Medicine and Pain Treatment, University Hospital Centre, Rijeka, Croatia

ABSTRACT

Introduction: Burnout syndrome is a growing concern among nursing students, potentially impacting their academic success and future professional performance. This study aimed to explore the prevalence of burnout syndrome in Croatian nursing students and examine the associations between burnout and demographic features (age, gender, year of study, part-time or full-time study).

Methods: A quantitative cross-sectional study was conducted with 423 nursing students from the University of Applied Health Sciences, Zagreb, and the Faculty of Health Sciences, Rijeka. The Maslach Burnout Inventory (MBI); MBI human services survey was used to assess burnout levels.

Results: Nursing students at the Faculty of Health Sciences, Rijeka, experienced higher burnout levels than those at the University of Applied Health Sciences, Zagreb (χ^2 = 10.214, ss = 2, p = 0.006). Significant associations were found between burnout levels and age, gender, year of study, and enrolment status. Specifically, younger students, female students, and full-time students reported higher levels of emotional exhaustion (EE). 2nd-year students reported lower EE than their first and 3rd-year peers.

Conclusions: This study underscores the importance of recognizing and addressing the unique needs and stressors faced by different subgroups of nursing students. Tailored interventions and support systems are essential for alleviating burnout and promoting well-being in nursing students. Further research, including longitudinal studies, is required to better understand burnout progression and to inform the development of effective strategies for reducing burnout in nursing education.

Keywords: Burnout syndrome; nursing students; undergraduate study

INTRODUCTION

Mental health problems in healthcare professionals have a great impact on healthcare systems in every country, whether developed or not (1). The most common problem is burnout syndrome, which is known to be a psychological, work-related issue. Burnout always develops because of long-term exposure to emotional and interpersonal stressors in the workplace (1). It manifests in negative self-esteem, a negative attitude toward work, and diminished interest in the clients/patients and is characterized by emotional exhaustion (EE), depersonalization (DP), and a lack of personal accomplishment (PA) (1-3).

*Corresponding author: Biljana Kurtović, Department of Nursing, University of Applied Health Sciences, Mlinarska 38, 10000 Zagreb, Croatia. E-mail: biljana.kurtovic@zvu.hr

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Burnout in nurses has been shown to be associated with adverse health outcomes, increased turnover, and decreased patient satisfaction (4). Burnout syndrome is extremely common in healthcare settings, and all the relevant literature confirms this thesis (3). Nurses are the largest group of healthcare professionals, so it is reasonable to expect a high incidence of burnout (3). Burnout syndrome occurs in people who work in jobs which involve frequent and intense contact with people, especially healthcare workers (5,6). The most common definition of burnout is the occurrence of physical, psychological, and EE, DP, and a low sense of PA (7).

Undergraduate studies also represent a critical period that can impact mental health, and a deterioration in mental health may lead to a parallel deterioration in academic results (8). Nursing and midwifery training programs are recognized as a major source of stress, as students are faced with severe patient conditions and even death (8).

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Nursing students' academic burnout affects their learning behavior and academic performance, which ultimately affects whether they will become qualified nurses (9). Although burnout has been well researched, very little is known about the academic burnout of nursing students, or about its relationship with professional self-concept (9). Wang *et al*. found nursing students' academic burnout level was close to the median on the academic burnout scale (9). Batista *et al*. revealed that the prevalence of burnout differed significantly between students in the analyzed curriculum models and was directly associated with academic satisfaction or the lack thereof (10). Educators should develop preventive actions against burnout in future nurses, focusing on the promotion of academic satisfaction (9).

Despite the harmful effects of burnout in many nursing students, academic burnout is poorly understood (11), and regardless of the research in the field of nursing student burnout, the protective strategies are inadequate.

The expected results of our study will give us associations between high burnout scores and other features which could potentially help in the development of prevention strategies, reducing burnout in the future. The study aims to explore the prevalence of burnout syndrome in Croatian nursing students, to compare results from two different universities, and to explore the associations between burnout syndrome and several demographic features (age, gender, year of study, and part time or full-time study).

METHODS

A cross-sectional study with two groups of participants was carried out at the University of Applied Health Sciences, Zagreb (Croatia), and the Faculty of Health Sciences, Rijeka (Croatia). The data were collected over a period of approximately 4 months (from 5 September to December 16, 2022).

The sample consisted of nursing students, the first group studying at the University of Applied Health Sciences, Zagreb (60.2%), and the second group at the Faculty of Health Sciences Rijeka (39.8%). After a thorough written and oral explanation of the ethical principles, purpose, and course of the research, they were asked to give informed consent for their participation in the study. Each included student from both groups answered a specially developed questionnaire. The researchers additionally checked whether the students had properly completed the questionnaire, understood the questions, and signed the informed consent (one blank questionnaire was not included in the analysis). In this way, the number of non-answered questions was reduced, and the credibility of the answers was increased. The average age of the respondents was 24 years (M = 24.63 ± 7.1, age range 20–57 years). The structure of the sample is shown in Table 1.

The demographic data were collected by general questionnaire to describe age, gender, year of study, and type of study. An internationally validated questionnaire/scale was used, which had already been validated in Croatia. The research instrument was a survey to examine burnout at work: a translation of the Maslach Burnout Inventory (MBI); MBI Human Services Survey (12). The MBI is an internationally accepted instrument which contains three subscales: EE (9 items), which showed a high reliability of internal consistency in the existing sample of students (Cronbach's alpha 0.90); DP (5 items) with a Cronbach's alpha of 0.73; and PA (8 items), with a Cronbach's alpha of 0.76 (Table 2). As a key measuring instrument, the Burnout at Work questionnaire was additionally analyzed according to the defined criteria from the Manual, whether it was a high, moderate, or low score, and the percentages and numbers of respondents in each category were compared with the demographic features. Higher composite scores in the EE and DP, together with a lower composite score in the PA section, determine a higher level of burnout (1,13,14).

In Table 2, all the scales show a high degree of internal consistency of reliability, especially the EE scale.

The data were analyzed in the statistical program SPSS (IBM, V 25.0) (15). The normality of the distribution for the continuous numerical variables was verified by the Shapiro–Wilk test. The mean and standard deviation, as well as the median and interquartile range, are shown as descriptive indicators because most variables deviated from a normal distribution. The reliability of the scales is expressed by the Cronbach's alpha coefficient of internal consistency.

For the nominal (categorized) variables, the number and percentage of respondents in the corresponding categories

TABLE 1. Number and percentage of respondents according to the collected demographic data

Demographic characteristics	n	%
Gender		
Male	68	16.2
Female	352	83.8
Total	420	100
Age category		
18-25 years	310	73.8
26-35 years	63	15
36-45 years	39	9.3
46-55 years	6	1.4
>55 years	2	0.5
Total	420	100
Year of study		
1	146	34.9
2	138	33
3	134	32.1
Total	418	100
Type of study		
Full-time study	196	46.8
Part-time study	223	53.2
Total	419	100
Organization		
University of Applied Health Sciences	244	60.2
Faculty of Health Sciences Rijeka	161	39.8
Total	405	100

TABLE 2. Normality of the distribution of the results of the total Maslach burnout inventory and individual subscales and their Cronbach alpha coefficients

Maslach burnout inventory subscales	Shapiro-Wilk *p*	Cronbach's alpha
Emotional exhaustion	0.001	0.90
Personal accomplishment	0.000	0.76
Depersonalization	0.000	0.73

are shown. The Chi-square test or Fisher's exact test was used to compare groups in the categorical variables. Binary regression analysis was used to verify the role of demographic variables in predicting a high level of burnout. The significance level for type 1 statistical errors was set at $p < 0.05$.

The study was approved by the Ethics Committee of the University of Applied Health Sciences, Zagreb (Croatia) at its regular session held on March 22, 2022 (FILE: CLASS 602-03/22-18/290, ORDER NUMBER: 251-37910-22-02) and the Faculty of Health Sciences, Rijeka (Croatia), at its regular session held on May 22, 2022 (FILE: CLASS 600-05/22-01/39, ORDER NUMBER 2170 -15-22-1). The Ethical Committees of the University of Applied Health Sciences, Zagreb, and the Faculty of Health Sciences, Rijeka, operate in line with the principles of the International Conference on Harmonisation (ICH GCP) and the Helsinki Declaration (16).

RESULTS

The results of the study showed that a statistically significant difference existed only in the self-assessment of EE. Female respondents had a significantly higher EE than male respondents ($\chi^2 = 9.981$, ss = 2, $p = 0.007$). Given that there were very few respondents in the highest age category, those older than 55 were omitted from the analysis, as otherwise, the conditions for calculating the Chi-square test were not met. The highest level of EE was in the youngest age group of 18-25 years ($\chi^2 = 15.583$, ss = 6, $p = 0.016$). Full-time students had a higher level of EE ($\chi^2 = 11.028$, ss = 2, $p = 0.004$) than part-time students and 2nd year students had a lower level of EE compared to 1st and 3rd year students ($\chi^2 = 9.626$, ss = 4, $p = 0.047$) (Table 3).

Significant statistical differences in DP and PA were not found in association with gender, age, type of study, or year of study.

Students at the Faculty of Health Studies, Rijeka, had a higher level of EE than students at the University of Applied Health Sciences, Zagreb ($\chi^2 = 10.214$, df = 2, $p = 0.006$). A higher proportion of these students also showed a high degree of DP ($\chi^2 = 6.114$, df = 2, $p = 0.047$), and more of them also had a high degree of burnout ($\chi^2 = 5.586$, df = 1, $p = 0.023$) (Table 3).

The model explains a very small percentage of the criterion variance, 4% (Nagelkerke $R^2 = 0.044$). The only significant predictor of high burnout was the institution where they were studying (OR = 0.537, CI: 0.350–0.885, $p = 0.013$); the University of Applied Health Sciences students had a 44% (0.44 times) lower chance of burnout than students at the Faculty of Health Studies (Table 4).

Logistic regression analysis was used to check whether certain demographic variables predicted a high degree of burnout. Burnout was entered into the model as a binary criterion variable. The following was entered as potential predictors: age categories, gender, type and year of study, and institution where they were studying (the last category of each variable is the reference category) (Table 5).

DISCUSSION

This cross-sectional study aimed to explore the prevalence of burnout syndrome in Croatian nursing students from

TABLE 3. Gender, age, type of study and year of study differences in association with emotional exhaustion

Maslach burnout inventory subscales and total Maslach burnout inventory categorized	Gender				*p*
	Male		Female		Chi-square
	n	%	n	%	
Emotional exhaustion					0.007
Low	24	35.3	85	24.2	
Medium	25	36.8	95	27.1	
High	19	27.9	171	48.7	

	Age								
	18–25 years		26–35 years		36–45 years		46–55 years		*p*
	n	%	n	%	n	%	n	%	
Emotional exhaustion									0.016
Low	66	21.4	26	41.3	14	35.9	3	50	
Medium	93	30.1	17	27	9	23.1	1	16.7	
High	150	48.5	20	31.7	16	41	2	33.3	

	Type of study				*p*
	Full-time		Part-time		
	n	%	n	%	
Emotional exhaustion					0.004
Low	36	18.5	73	32.7	
Medium	62	31.8	57	25.6	
High	97	49.7	93	41.7	

	Year of study						*p*
	1		2		3		
	n	%	n	%	n	%	
Emotional exhaustion							0.047
Low	28	19.2	47	34.3	34	25.4	
Medium	50	34.2	33	24.1	36	26.9	
High	68	46.6	57	41.6	64	47.8	

two different universities, as well as to examine the associations between burnout syndrome and various demographic features, such as age, gender, year of study, and part-time or full-time study status.

One of the key findings in our study was the observed differences in burnout aspects between students at the Faculty of Health Studies, Rijeka, and those at the University of Applied Health Sciences, Zagreb. We found that students at the Faculty of Health Studies showed significantly higher levels of EE (χ^2 = 10.214, ss = 2, p = 0.006), and a higher proportion of students with a high degree of DP (χ^2 = 6.114, ss = 2, p = 0.047). Moreover, a greater percentage of students at the Faculty of Health Studies experienced a high degree of burnout (χ^2 = 5.586, ss = 1, p = 0.023) (Table 3). These findings are consistent with previous research which has reported variations in burnout levels in nursing students from different institutions (17). These variations may be attributed to factors such as differences in curricula, teaching methodologies, student support systems, and institutional culture.

Overall, our results show that burnout syndrome is prevalent among Croatian nursing students, which is in line with findings from previous studies conducted in other countries (18). This suggests that burnout is not only an issue for practicing nurses but also a significant concern for nursing students during their education because a large proportion of students cite idealism as a personal reason for choosing their studies (46.2%), regardless of whether they are full-time or part-time (19). The high prevalence of burnout in this population may have long-term consequences for the nursing profession, as it could negatively impact students' well-being, academic performance, and ultimately, their retention in the nursing workforce.

Another finding from our study was the relationship between age and EE among nursing students. Our results showed that the youngest group, comprising students aged 18–25, experienced the highest level of EE (χ^2 = 15.583, df = 6, p = 0.016) (Table 6). This finding is in line with previous research that has reported higher levels of burnout in younger nursing students (20). The increased vulnerability of younger students to EE may be due to factors such as limited coping skills, lack of experience in managing stress, and the challenges of transitioning from secondary education to the demanding environment of a nursing program. It is crucial for educators and institutions to recognize the unique stressors faced by younger nursing students and to provide targeted support, such as stress management workshops, mentorship programs, and resources for enhancing resilience and coping skills.

Academic burnout has been observed to begin during the initial phases of the educational program, and it tends to intensify as students advance through their academic years and engage in clinical training (21,22). Our analysis of the association between the year of study and EE levels in nursing students revealed an interesting pattern. We found that 2nd-year students reported a significantly lower level of EE than their 1st and 3rd-year peers (χ^2 = 9.626, df = 4, p = 0.047) (Table 6). This finding is somewhat surprising, as previous research has generally reported an increase in burnout levels with each successive year of study, which contrasts with our findings (9,18,23,24). For instance, Rudman and Gustavsson observed a rise in study burnout from 30% to 41% over 3 years in nursing higher education, with significant increases in both exhaustion and disengagement across the educational years (p < 0.001) (23). The existence of such contrasting findings emphasizes the need for more comprehensive and in-depth research to better understand the factors contributing to these differences

TABLE 4. Differences in the representation of individual categories of burnout on the total Maslach burnout inventory and subscales according to faculty

Maslach burnout inventory subscales categorized	Institution				*p*
	University of Applied Health Sciences		Faculty of Health Studies Rijeka		
	n	%	n	%	
Emotional exhaustion					
Low	75	30.7	29	18.1	0.006
Medium	72	29.5	45	28.1	
High	97	39.8	86	53.8	
Total	244	100	160	100	
Personal accomplishment					
Low	73	29.9	44	27.7	0.813
Medium	98	40.2	63	39.6	
High	73	29.9	52	32.7	
Total	244	100	159	100	
Depersonalization					
Low	144	59	83	51.9	0.047
Medium	68	27.9	41	25.6	
High	32	13.1	36	22.5	
Total	244	100	160	100	

TABLE 5. Results of binary regression analysis for burnout

	B	df	Sig.	OR	95% CI	
Age categories		3	0.845			
Age (18–25 year)	−0.269	1	0.778	0.764	0.117	−4.980
Age (26–35 year)	−0.588	1	0.542	0.555	0.084	−3.674
Age (36–45 year)	−0.325	1	0.742	0.722	0.104	−5.007
Gender (male)	−0.330	1	0.325	0.719	0.373	−1.387
Year of study		2	0.259			
Year (1)	−0.272	1	0.335	0.762	0.439	−1.324
Year (2)	−0.471	1	0.102	0.624	0.355	−1.098
Type of study (full-time)	−0.165	1	0.545	0.848	0.496	−1.448
Institution (University of Applied Health Science)	−0.586	1	0.013	0.557	0.350	−0.885
Constant	0.006	1	0.995	1.006		

TABLE 6. Percentages and numbers of respondents in individual categories of Maslach burnout inventory subscales and total Maslach burnout inventory

Maslach burnout inventory subscales and total Maslach burnout inventory categorized	n	%
Emotional exhaustion in 3 levels		
Low	111	26.3
Medium	120	28.4
High	191	45.3
Total	422	100
Personal accomplishment in 3 levels (reverse scoring)		
Low	120	28.5
Medium	170	40.4
High	131	31.1
Total	421	100
Depersonalization in 3 levels		
Low	239	56.6
Medium	112	26.5
High	71	16.8
Total	422	100
Burnout (total Maslach burnout inventory)		
Low and medium burnout	304	72.2
High burnout	117	27.8
Total	421	100

and the progression of burnout in nursing students. The lower EE experienced by 2nd-year students in our sample could be attributed to factors such as adaptation to the nursing program, the development of coping strategies, or a difference in academic and clinical workload compared to the 1st and 3rd years.

Our study revealed a significant gender difference in the self-assessment of EE in nursing students. Specifically, we found that female respondents reported significantly higher levels of EE compared to their male counterparts (χ^2 = 9.981, df = 2, p = 0.007) (Table 6). In a study conducted by Valero-Chillerón *et al.*, the female subsample showed higher stress levels due to multiple factors (22). Similarly, an Italian study revealed that female students experienced elevated levels of exhaustion, cognitive impairment, and emotional impairment compared to their male counterparts (25). The increased EE experienced by female students may be influenced by various factors such as gender-specific stressors, societal expectations, and coping mechanisms.

We also identified a notable difference in EE between regular (full-time) and part-time nursing students, which represents another significant finding. We found that full-time students experienced a higher level of EE compared to their part-time peers (χ^2 = 11.028, df = 2, p = 0.004) (Table 6). This finding contrasts with some previous research that has reported higher burnout levels in part-time students (26-28), demonstrating that the stress resulting from balancing work, family, and academic responsibilities can potentially contribute to burnout and depression (26,27). Moreover, these adverse effects were more prominent among students who work for 20 or more h per week (28). It is important for educators and institutions to recognize the distinct stressors faced by both full-time and part-time nursing students and to implement tailored support and resources that cater to the needs of each group.

In our efforts to identify potential demographic predictors of high burnout in nursing students, we conducted a logistic regression analysis. The analysis revealed that the institution where students studied was the only significant predictor of high burnout (OR = 0.537, CI: 0.350–0.885, p = 0.013). Specifically, students at the University of Applied Health Sciences, Zagreb, had a 44% lower chance of experiencing high burnout than students at the Faculty of Health Sciences, Rijeka. This finding reinforces the importance of institutional factors in shaping nursing students' experience of burnout and is consistent with previous research which reported differences in burnout levels across various educational settings (29,30). Further research is necessary to identify the key factors responsible for the lower burnout risk in students at the University of Applied Health Sciences, Zagreb, as these insights could help inform the development of targeted interventions aimed at reducing burnout in students at the Faculty of Health Sciences, Rijeka, and other similar institutions.

A limitation of this study is its cross-sectional design, which provides only a snapshot of burnout levels at a single point in time. It cannot establish causal relationships or assess changes in burnout over time. Longitudinal studies would be more suitable for examining the development and progression of burnout in nursing students. Qualitative methodology would also give better insight into this problem and should be implemented in further plans for researching it. Our study focused on nursing students from only two universities in Croatia. Thus, it may not be possible to generalize the results to nursing students in other institutions. The study explored the associations between burnout and several demographic features; however, other potential confounding factors, such as personality traits, coping strategies, and social support, were not considered. These factors could also influence burnout levels in nursing students and should be considered in future research. Another limitation of the study was that the instrument was designed for use with employed individuals, which only formed part of our sample. However, the full-time students had a high amount of clinical placement time, and we are certain this did not influence the study results.

CONCLUSIONS

This study highlights the prevalence of burnout in Croatian nursing students and identifies key demographic factors and institutional differences that influence burnout levels. Our findings emphasize the importance of tailored interventions and support systems to alleviate burnout and promote well-being in nursing education, as well as specific changes in teaching practice in educating future health professionals. Further research, including longitudinal studies, is required to better understand the progression of burnout and inform the development of effective strategies for reducing burnout in nursing students, ultimately contributing to a healthier, more resilient nursing workforce.

DECLARATION OF INTERESTS

Authors declare no conflict of interests.

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