Original article

Work Environment, Job Satisfaction, and Work Ability Among Nurses in Emergency Medical Services: A Pilot Study

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Abstract

Aim: To examine the association between the nursing work environment, job satisfaction, and work ability among emergency medical service nurses.

Methods: This pilot cross-sectional study was conducted among nurses working in emergency medical services in two Croatian counties between May and July 2024. Data were collected using a self-administered questionnaire including sociodemographic items and two validated instruments (PES-NWI and WAI). Nonparametric tests, correlation analysis, and bivariate and multivariate logistic regression were applied.

Results: Overall, 90 participants (92.8%) had good or excellent work ability (WAI). Staffing and Resource Adequacy differed significantly across work settings (P = 0.002), with lower WAI among dispatch or non-emergency transport staff (median 38.8) compared with Team I (median 43.0) and Team II (median 44.5) (P < 0.001). Work ability was significantly correlated with the nursing practice environment, job satisfaction, and belief in upcoming healthcare reforms, with the strongest association observed between job satisfaction and belief in healthcare improvements (Spearman's rho = 0.725). In multivariate logistic regression, nurses' participation in hospital work predicted excellent work ability (OR 1.81; 95% CI 1.16–2.83).

Conclusion: The findings suggest that characteristics of the nursing work environment are associated with job satisfaction and work ability among emergency care nurses, highlighting the potential importance of supportive leadership, adequate staffing, and opportunities for professional participation.

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Introduction

In the Republic of Croatia, emergency medical services (EMS) are organized at the county level, with a total of 21 counties. The number of emergency teams is determined by the national emergency services network established by the Ministry of Health. These teams include: Team 1 – composed of a physician, a nurse, and a driver; Team 2 – typically staffed by a specialized emergency nurse; non-emergency medical transport units – consisting of a nurse and a driver; and dispatch units – usually staffed by nurses, with a physician present in some larger counties. The latest legal document on detailing how emergency medical services and ambulance transport are structured and run in Croatia is in effect since 2024. EMS in Croatia is in a process of change, and there are no studies, to are knowledge, about the nurses' work environment, work ability and job satisfaction in that changing system. Work environment in emergency services in other countries is understudied (1), although it has been associated with experiencing traumatic events and violence (2) and it can contribute to errors or adverse effects in hospitals, therefore it is important for patient safety (3). Muir et al. showed that hospitals with better emergency department work environment have better outcomes (1). In both Oman(4) and Thailand (5), the work environment has been shown to play a crucial role in nurses' job satisfaction. Similarly, improving the work environment for nurses in China has been associated with reduced job dissatisfaction (6). A recent systematic review showed that paramedics are intrinsically motivated, action-oriented, and highly engaged, which enables a balance with difficult working conditions of EMS (2). Work ability reflects the person's potential in a particular work setting, and it is measured by the Work Ability Indeks. The aim of the Work Ability Index Questionnaire is to identify the impact of work on employees' health and work ability at an early stage. It is used for both individuals and groups, in the workplace as well as in healthcare organizations and scientific research, where it serves as a measure of occupational health protection (7). It can be used as an instrument for assessing employees' self-evaluated work ability, as a basis for dialogue with an occupational medicine physician, and as a tool in scientific research on work ability. The aim of this pilot study is to examine the impact of the work environment on job satisfaction and work ability among nurses employed in out-of-hospital emergency medical services in two Croatian counties.

Methods and Participants

Study design

This pilot cross-sectional study was conducted in two Croatian counties between May and July 2024.

Setting

The study was conducted in the County Institutes of Emergency Medicine in two Croatian counties, including nurses in Team I, Team II, non-emergency transport, and dispatch units.

Participants

The pilot study participants were nurses employed in two selected counties. The questionnaire was intended for all nurses employed at the County Institutes of Emergency Medicine, regardless of their level of education or specific position within the institution. The questionnaire was intended for all nurses employed at the County Institutes of Emergency Medicine, regardless of their level of education or specific position within the institution. Inclusion criteria were full-time employment as a nurse and voluntary consent to participate in the study, while excluded criteria was not defined. As this was pilot study no needed sample size was calculated. However, number of full-time employed nurses in those two County Institutes of Emergency Medicine was 160, and there was 97 (60,6%) of the respondents.

Data collection

Data were collected face to face, using a structured questionnaire that included sociodemographic variables such as age, gender, length of service in the current position,

level of education, and questions related to the participant's demographic and employment characteristics. Additionally, two validated instruments in Croatian language were employed with additional questions regarding job satisfaction. The estimated time required to complete the questionnaire ranged from 15 to 30 minutes. A total of 120 questionnaires were distributed. Data collection took place during regular 12-hour work shifts, both day and night. Upon completion, the questionnaires were deposited into designated collection boxes to ensure anonymity and data integrity.

Instruments

Practice Environment Scale of the Nursing Work Index (PES-NWI), comprising a total of 31 items grouped into five subscales. Permission to use the instrument validated in Croatian language was obtained from the authors of the validated questionnaire with Cronbach's Alpha above 0.71 for all five subscales (8).
The PES-NWI questionnaire was developed to measure the current state of the nursing practice environment through the following subscales:

1. Nurse participation in hospital affairs
2. Nursing foundations for quality of care
3. Nurse manager ability, leadership, and support
4. Staffing and resource adequacy
5. Collegial nurse–physician relations

For each item, responses are rated on a four-point Likert scale (from Strongly disagree to Strongly agree). The composite score is calculated as the mean of the subscale scores. Higher subscale values indicate better implementation of a supportive work environment. The measurement instrument has been translated into 24 languages, with 15 language versions used in 35 countries (9).

The Work Ability Index (WAI) is a questionnaire assessing work ability that was developed by the Finnish Institute of Occupational Health in the 1980s. The questionnaire has been translated into 28 languages and is widely used worldwide in occupational health and research projects. The WAI is calculated numerically according to the official guidelines provided by the Finnish Institute of Occupational Health, where total score ranges from 7 to 49, with higher scores indicating better work ability. Croatian version of the WAI questionnaire has overall Cronbach's Alpha coefficient equals 0.71 (10). The WAI questionnaire consists of seven dimensions:

1. Subjective assessment of current work ability compared with lifetime best
2. Subjective assessment of work ability in relation to physical and mental job demands
3. Number of current physician-diagnosed diseases
4. Subjective assessment of how much disease(s) impair work performance
5. Sick leave during the past 12 months
6. Personal prognosis of work ability two years from now
7. Psychological resources (enjoyment of daily activities, physical and mental activity, optimism about the future)

Based on the total score, WAI results are classified into four categories describing work ability:

- Poor: 7–27 points (restore work ability)
- Moderate: 28–36 points (improve work ability)
- Good: 37–43 points (promote work ability)
- Excellent: 44–49 points (maintain work ability)

Participants scoring 36 points or less on the WAI are considered to have a low (or very low) work ability index, whereas those scoring 37 points or

more are considered to have a satisfactory (or high) work ability index.

Job satisfaction was measured using two separate questions answered on a Likert scale (11). The questions were:

1. Overall, how satisfied are you with your current work situation?
2. How confident are you that upcoming improvements in the healthcare system will improve your work situation?

Responses were on the five score Likert scale from Very satisfied to Very dissatisfied, and from Very confident to Extremely unconfident.

Statistical analysis

Categorical data are presented as absolute and relative frequencies. Differences between categorical variables were tested using Fisher's exact test. Continuous variables were compared between two independent groups using the Mann–Whitney U test (with reported differences and 95% confidence intervals), while comparisons of continuous variables among three or more independent groups were performed using the Kruskal–Wallis test with Conover post hoc analysis. Associations between continuous variables were assessed using Spearman's rank correlation coefficient (rho). Bivariate and multivariate logistic regression analyses (stepwise method) were used to identify predictors of excellent work ability (WAI) among nurses. Missing data were not interpolated; all analyses were performed using available data only (complete case analysis for each test). All P values are two tailed, with the level of statistical significance set at α = 0.05. Statistical analyses were performed using MedCalc® Statistical Software version 23.3.7 (MedCalc Software Ltd, Ostend, Belgium; https://www.medcalc.org; 2025). The study results are reported in accordance with the EQUATOR Network guidelines for reporting research findings in biomedicine and the health sciences.

Ethical considerations

Ethical approvals were obtained from the relevant institutional ethics committees prior to the commencement of the study. All participants signed an informed consent form, and data were anonymized to ensure confidentiality. Approval for conducting the pilot study in Brod-Posavina County was granted by the Ethics Committee of the Institute of Emergency Medicine (Ref. No. 939/2024), while in Osijek-Baranja County the approval was granted by the Ethics Committee of the Institute of Emergency Medicine (Ref. No. 381-24/01).

Results

The study included 97 participants, of whom 43 (44.3%) were female. The median age was 32 years (range: 20–64). Almost half of the participants, 44 (45.4%), were registered nurses. More than three quarters, 74 (76.3%), were employed full time on a permanent basis. The majority of participants, 59 (60.8%), worked in Team I, while a smaller, 16 (16.5%), were employed in dispatch units or non emergency patient transport services. Median ratings for both satisfaction with the current work situation and belief in the positive impact of upcoming healthcare reforms were 4 on a five point Likert scale. Among the PES-NWI domains, the highest scores were observed for Nurse Manager Ability, Leadership, and Support of Nurses, as well as Collegial Nurse Physician Relations. The median Work Ability Index (WAI) score was 40 (range: 30 to 47; possible range: 7 to 49) (Table 1).

No significant differences in PES-NWI or WAI scores were observed by gender or education level. However, participants working in dispatch units or non-emergency patient transport reported significantly lower scores for Staffing and Resource Adequacy (Kruskal Wallis test, P = 0.002) and lower WAI scores (Kruskal Wallis test, P < 0.001) compared with those working in Team I and Team II (Table 2).

Table 1. General characteristics of participants

Gender [n (%)]	
Male	54 (55.7)
Female	43 (44.3)
Age (years) [Median (IQR)]	32 (25 – 41)
Level of education [n (%)]	
Nurse	44 (45.4)
Bachelor's degree	39 (40.2)
Master of nursing/Graduate nurse technician	14 (14.4)
Employed on a permanent basis [n (%)]	74 (76.3)
Workplace [n (%)]	
Team I	59 (60.8)
Team II	22 (22.7)
Other (registration/reporting unit, medical transport)	16 (16.5)
Satisfaction with Current Job Situation (1 = very dissatisfied; 5 = very satisfied) [Median (IQR)]	4 (4 – 5)
Belief that Upcoming Improvements in the Health System Will Improve Their Job Situation (1 = very unconfident; 5 = very confident) [Median (IQR)]	4 (3 – 5)
Practice Environment Scale of the Nursing Work Index (PES – NWI) [Median (IQR)]	
Nurse participation in hospital affairs	4.2 (3.6 - 4.8)
Nursing foundations for quality of care	4.4 (3.8 - 5.1)
Nurse manager ability, leadership, and support of nurses	4.6 (3.6 - 6.2)
Staffing and resource adequacy	4 (2.9 - 5)
Collegial nurse-physician relations	5 (4 - 6.3)
Work Ability Index (WAI) (possible range 7 to 49) [Median (IQR)]	40 (37.5 - 42.5)

IQR - interquartile range

Table 2. Differences in PES-NWI and WAI Subscales According to Participant Characteristics

Gender	**Median (IQR)**		**Difference (95% CI)**	***P****
	Male (n = 54)	**Female (n = 43)**		
PES - NWI				
Nurse participation in hospital affairs	4.0 (3.6 – 4.8)	4.2 (3.6 – 4.8)	0.22 (-0.22 do 0.56)	0.33
Nursing foundations for quality of care	4.4 (3.6 – 5.0)	4.5 (3.9 – 5.1)	0.20 (-0.2 – 0.6)	0.36
Nurse manager ability, leadership, and support of nurses	4.4 (3.4 – 6.2)	4.8 (3.8 – 6.5)	0.20 (-0.4 – 0.8)	0.44
Staffing and resource adequacy	4.0 (3 – 5.5)	3.8 (2.5 – 4.9)	-0.25 (-1 – 4.9)	0.34
Collegial nurse-physician relations	5.0 (4 – 6.3)	5.0 (4 – 6.3)	0 (-0.7 – 0.7)	0.94
WAI (Work Ability Index)	42.5 (40.5 – 46)	43.0 (39 – 44.5)	-1 (-2 – 1)	0.30
Level of education	Nurse/technician (n = 44)	Bachelor's degree (n = 39)	Master of Nursing (n = 14)	*P*ǂ
PES - NWI				
Nurse participation in hospital affairs	4.1 (3.6 – 4.8)	4.3 (3.6 – 4.9)	4.0 (3.3 – 4.4)	0.49
Nursing foundations for quality of care	4.6 (3.9 – 5.3)	4.3 (3.8 – 5.0)	4.0 (3.5 – 4.4)	0.06
Nurse manager ability, leadership, and support of nurses	5.0 (3.4 – 6.2)	4.4 (3.8 – 6.4)	4.1 (3.2 – 6.0)	0.90
Staffing and resource adequacy	4.0 (2.7 – 5.0)	4.0 (2.8 – 5.0)	4.0 (3.0 – 5.5)	0.78
Collegial nurse-physician relations	5.0 (4.0 – 6.5)	5.0 (4.3 – 6.3)	5.3 (4.0 – 6.3)	0.78
WAI	42 (38.5 – 45)	43 (41 – 45)	44.5 (40.5 – 46)	0.36
Workplace	Team I (n = 59)	Team II (n = 22)	Other§ (n = 16)	*P*ǂ
PES - NWI				
Nurse participation in hospital affairs	4.3 (3.6 – 4.9)	4.1 (3.3 – 4.7)	3.9 (3.4 – 4.2)	0.37
Nursing foundations for quality of care	4.5 (3.8 – 5.2)	4.3 (3.9 – 5.0)	4.3 (3.5 – 5.0)	0.55
Nurse manager ability, leadership, and support of nurses	4.8 (3.6 – 6.6)	4.7 (3.8 – 6.2)	4.4 (3.3 – 5.2)	0.37
Staffing and resource adequacy	4.0 (3.3 – 5.0)	4.1 (3.5 – 5.5)	2.6 (1.6 – 3.6)	**0.002**ǂ
Collegial nurse-physician relations	5.3 (4.0 – 6.6)	5.0 (4 – 6.3)	4.3 (3.5 – 5)	0.09
WAI (Work Ability Index)	43 (41 – 45)	44.5 (41 – 46)	38.8 (37 – 40.8)	**<0.001**ǂ

CI - Confidence interval; IQR - interquartile range; *Mann Whitney U test (Hodges-Lehmann median difference); ǂKruskal-Wallis test (Post hoc Conover test); §registration reporting unit, medical transport; Bold values denote statistical significance.

ǂ at the level of P < 0.05 there are significant differences: Other vs. (Team I, Team II)

Overall, 90 participants (92.8%) were classified as having good or excellent work ability, with no differences by gender or education. However, work ability ratings differed significantly across work settings (Fisher's Exact test, P = 0.04) (Table 3).

Table 3. Distribution of Participants by Work Ability Index Rating According to Characteristics

Gender	**Number (%) of participants**			***P****
	Male (n = 54)	**Female (n = 43)**	**Total (n = 97)**	
Work ability				
Moderate	5 (9.3)	2 (4.7)	7 (7.2)	
Good	24 (44.4)	20 (46.5)	44 (45.4)	0.78
Excellent	25 (46.3)	21 (48.8)	46 (47.4)	
	Number (%) of participants			
Level of education	Nurse/technician (n = 44)	Bachelor's degree (n = 39)	Master of Nursing (n = 14)	*P**
Work ability				
Moderate	4 (9.1)	2 (5.1)	1 (7.1)	
Good	21 (47.7)	18 (46.2)	5 (35.7)	0.88
Excellent	19 (43.2)	19 (48.7)	8 (57.1)	
	Number (%) of participants			
Workplace	Team I (n = 59)	Team II (n = 22)	Other† (n = 16)	*P**
Work ability				
Moderate	3 (5.1)	1 (4.5)	3 (18.8)	
Good	27 (45.8)	7 (31.8)	10 (62.5)	**0.04**
Excellent	29 (49.2)	14 (63.6)	3 (18.8)	

*Fisher's Exact Test; †registration reporting unit, medical transport; Bold values denote statistical significance.

Significant differences across work ability (WAI) levels were observed in PES-NWI scores, job satisfaction, and belief in the positive impact of upcoming healthcare reforms, across all PES-NWI domains except Nursing Foundations for Quality of Care. Participants with excellent work ability reported higher scores in Nurse Participation in Hospital Affairs compared with those with good work ability (Kruskal Wallis test, P = 0.02). In addition, participants with moderate work ability scored significantly lower in Nurse Manager Ability, Leadership, and Support of Nurses (Kruskal Wallis test, P = 0.01) and Staffing and Resource Adequacy (Kruskal Wallis test, P = 0.04) than those with excellent work ability. Moderate work ability was associated with lower job satisfaction (Kruskal Wallis test, P = 0.002), whereas excellent work ability was associated with a stronger belief that upcoming reforms would improve the work situation (Kruskal Wallis test, P = 0.001) (Table 4).

Table 4. Differences in Nurse Work Environment Ratings by Work Ability Level

	Median (IQR) work ability (WAI index)			
	Moderate (n = 7) (1)	**Good (n = 44) (2)**	**Excellent (n = 46) (3)**	***P****
PES - NWI				
Nurse participation in hospital affairs	3.8 (3.6 – 4.1)	3.8 (3.2 – 4.6)	4.5 (3.8- 4.9)	**0.02**ǂ
Nursing foundations for quality of care	3.1 (2.9 – 4.4)	4.4 (3.8 – 5.2)	4.6 (3.9 – 5.0)	0.08
Nurse manager ability, leadership, and support of nurses	3.6 (3.2 – 3.9)	4.4 (3.4 – 5.8)	5.2 (4.0 – 6.4)	**0.01**ǂ
Staffing and resource adequacy	3.0 (1.4 – 3.5)	3.9 (2.4 – 5.0)	4.0 (3.8 – 5.3)	**0.04**ǂ
Collegial nurse-physician relations	3.0 (3.0 – 4.7)	5.0 (4.0 – 6.3)	5.5 (4.0 – 6.7)	**0.01**§
Satisfaction with the current situation at work	3 (3 – 4)	4 (3 – 5)	5 (4 – 5)	**0.002**‖
The belief that upcoming improvements in the health system will improve their situation at work	3 (2 – 3)	3 (3 – 4)	4 (3 – 5)	**0.001**§

IQR - interquartile range; *Kruskal-Wallis test (Post hoc Conover); Bold values denote statistical significance.
ǂ at the level of P < 0.05 there are significant differences(3) vs. (4)
ǂ at the level of P < 0.05 there are significant differences: (1) vs. (3)
§ at the level of P < 0.05 there are significant differences: (1) vs. (2)(3)
‖ at the level of P < 0.05 there are significant differences: (4) vs. (1)(2)

Spearman's correlation analysis showed that work ability (WAI) was weakly but significantly positively correlated with most PES-NWI domains, except Nursing Foundations for Quality of Care. Job satisfaction and belief in upcoming health system improvements were significantly correlated with all PES-NWI domains and with WAI. The strongest correlations were observed between job satisfaction and Participation of nurses in hospital work (Rho = 0.544) and Ability, leadership and support of nurse managers (Rho = 0.592), while the strongest overall association was found between satisfaction with the current work situation and belief in upcoming health system improvements (Rho = 0.725) (Table 5).

Bivariate and multivariate logistic regression analyses were performed to identify predictors of excellent work ability (WAI). Independent predictors included age, gender, PES-NWI domains, job satisfaction, and belief in the impact of upcoming healthcare system improvements. In bivariate logistic regression, higher job satisfaction (OR = 2.04), nurses' participation in hospital work (OR = 1.81), and stronger belief in future improvements (OR = 1.68) were the strongest predictors of excellent work ability. In the multivariate stepwise model, nurses' participation in hospital work remained the only significant predictor (OR = 1.81). The final model was significant (χ^2 = 7.68, P = 0.006), explained 8 to 10% of the variance in WAI (Cox & Snell R^2 to Nagelkerke R^2), and correctly classified 63% of cases (Table 6).

Table 5. Correlation between Work Environment Assessment and Work Ability, Satisfaction, and Belief in Reform

	Spearman's *Rho* (*P* value)		
	WAI	**Satisfaction with the current situation at work**	**The belief that upcoming improvements in the health system will improve their situation at work**
PES – NWI			
Nurse participation in hospital affairs	**0.248 (0.01)**	**0.544 (<0.001)**	**0.409 (<0.001)**
Nursing foundations for quality of care	0.100 (0.33)	**0.308 (0.002)**	**0.377 (<0.001)**
Nurse manager ability, leadership, and support of nurses	**0.235 (0.02)**	**0.547 (<0.001)**	**0.607 (<0.001)**
Staffing and resource adequacy	**0.217 (0.03)**	**0.440 (<0.001)**	**0.592 (<0.001)**
Collegial nurse-physician relations	**0.224 (0.03)**	**0.406 (<0.001)**	**0.517 (<0.001)**
WAI (Work Ability Index)	**-**	**0.368 (<0.001)**	**0.336 (0.001)**
Satisfaction with the current situation at work	**0.368 (<0.001)**	**-**	**0.725 (<0.001)**
The belief that upcoming improvements in the health system will improve their situation at work	**0.336 (0.001)**	**0.725 (<0.001)**	**-**

Bold values denote statistical significance

Tablica 6. Prediction of excellent work ability (WAI) (bivariate and multivariate logistic regression)

	ß	***P* value**	**Odds Ratio (OR)**	**95% CI**
Bivariate logistic regression				
Age	-0.05	**0.02**	0.95	0.92 to 0.99
Gender (F)	0.10	0.80	1.11	0.49 to 2.47
PES - NWI				
Nurse participation in hospital affairs	0.60	**0.009**	1.81	1.16 to 2.83
Nursing foundations for quality of care	0.26	0.22	1.29	0.86 to 1.94
Nurse manager ability, leadership, and support of nurses	0.32	**0.02**	1.37	1.04 to 1.81
Staffing and resource adequacy	0.20	0.12	1.22	0.95 to 1.58
Collegial nurse-physician relations	0.30	**0.04**	1.36	1.01 to 1.83
Satisfaction with the current situation at work	0.72	**0.009**	2.04	1.19 to 3.51
The belief that upcoming improvements in the health system will improve their situation at work	0.52	**0.02**	1.68	1.09 to 2.58
Multivariate logistic regression (*stepwise* method)				
Nurse participation in hospital affairs	0.60	**0.009**	1.81	1.16 to 2.83
Constant	-2.57	**0.008**		

ß – regression coefficient; CI – Confidence interval; Bold values denote statistical significance

Discussion

The results of this study indicate that there is a significant association between nurses' perceptions of their work environment in the field of prehospital emergency care and their Work Ability Index (WAI), job satisfaction with their current situation, and their confidence that upcoming improvements in the healthcare system will enhance their working conditions. Among the domains of the Practice Environment Scale of the Nursing Work Index (PES-NWI), the highest-rated domains were Nurse manager ability, leadership, and support of nurses (mean score: 4.6) and Collegial nurse-physician relations (mean score: 5), while the lowest-rated was Staffing and resource adequacy (mean score: 4). These findings are consistent with the review by Swiger et al. (2017), which analyzed 46 articles from 28 countries and similarly identified the Staffing and resource adequacy domain as receiving the lowest rating (9).

The results are encouraging when compared to a study conducted in Portugal among nurses in primary healthcare settings, where the average score of the work environment was 2.5, perceived as unfavorable (12). The present findings are aligned with studies that define the nursing work environment as a set of organizational characteristics that positively influence professional nursing practice and job satisfaction (11,13), as well as employee productivity (14). Numerous studies from different countries have shown that, beyond factors such as low salaries and workforce migration, working conditions significantly influence nurses' decisions to leave the profession (15). The importance of evaluating the work environment across all its domains lies in the evidence that a positive work environment impacts the quality of care, patient safety, clinical outcomes (11), collaboration, teamwork, and ultimately, the health of healthcare workers themselves (14). Our research confirms the critical role of nurse managers, who must continuously improve all domains of the work environment to facilitate recruitment policies that ensure adequate resources, reduce staff turnover—or at least adapt to it—and maintain or improve the quality of care (1). Our study shows that 92.8% of the nurses had good or excellent work ability, with no significant differences based on gender or education level. However, significant differences were observed among job positions, with members of emergency intervention teams (Team 1 and Team 2) reporting higher work ability scores compared to medical transport and call center staff. A significant, albeit weak, positive correlation was found between the Work Ability Index and most PES-NWI domains, except Nursing foundations for quality of care. Nurses who participated in decision-making processes at their institutions (Nurse participation in hospital affairs) were 1.81 times more likely to rate their work ability as excellent, as were those with higher ratings of Nurse manager ability, leadership, and support of nurses (OR = 1.37), better nurse-physician relations (Collegial nurse-physician relations), greater satisfaction with their current job situation (OR = 2.04), and stronger belief in the potential for healthcare system reforms to improve their working conditions (OR = 1.68). The study further found that the overall model significantly predicted excellent work ability, with Nurse participation in hospital affairs as a key predictor (OR = 1.81), explaining between 8% (Cox & Snell R^2) and 10% (Nagelkerke R^2) of the variance and correctly classifying 63% of cases. In our study, satisfaction with the current job situation and belief in upcoming healthcare reforms were both rated with a median score of 4 (range: 1–5) and were significantly associated with all PES-NWI domains and with the WAI. Emergency medical service (EMS) workers are generally motivated and satisfied with their jobs, as supported by our findings—greater job satisfaction and higher motivation appear to be potential predictors of higher work ability. A study conducted in Slovenia showed that nurses with lower education levels reported significantly lower satisfaction with their work environment and most aspects of their job compared to nurses with a bachelor's degree, suggesting that higher education levels are linked to greater job satisfaction(16). Similarly, Phillips et al.(17) found that less educated nurses providing clinical care reported lower evaluations of their work environment and lower

job satisfaction. Most respondents in our study reported being fairly satisfied with their jobs. A stronger correlation was found between satisfaction with the current job situation and the domains Nurse participation in hospital affairs (Rho = 0.544) and Nurse manager ability, leadership, and support of nurses (Rho = 0.592). Regarding belief in the potential for future healthcare reforms to improve working conditions, stronger associations were observed with Nurse manager ability, leadership, and support of nurses (Rho = 0.607) and Staffing and resource adequacy (Rho = 0.592). The results also show significant differences in nurses' assessments of their work environment (PES-NWI), satisfaction with their current job situation, and belief in the effects of healthcare reform, depending on the level of the Work Ability Index. These differences were significant across all PES-NWI domains except Nursing foundations for quality of care. Respondents with moderate work ability reported significantly lower satisfaction with their current job (Kruskal-Wallis test, P = 0.002), whereas those with excellent work ability more strongly believed that upcoming healthcare reforms would improve their work conditions. Work ability was also found to be linked to opportunities for advancement within emergency medicine. Team 1 and Team 2 members expressed high satisfaction with their current roles and reported high WAI scores—unsurprising given their access to professional advancement, expanded competencies that may not require physician oversight, and greater autonomy. They also expressed confidence that upcoming system reforms would enhance their status in emergency medicine, which is already evidenced by the implementation of specialist training in emergency medicine and the announcement of new legislation in the field. In contrast, studies from other countries have found that the lowest WAI scores among nurses working in emergency departments stemmed from high patient volumes, acuity of cases, rapid decision-making, stress, and burnout, factors that adversely affected both work ability and care quality. Consequently, reduced job satisfaction can lead to a decline in work performance. Quality of work life is influenced by both professional and individual factors—nurses with higher work ability are better aligned with job demands and have greater insight into workplace conditions. Therefore, work ability can improve quality of working life(18). The results of this study are encouraging and provide optimism for further improvements. However, ongoing concern remains regarding the projected shortage of qualified personnel both in neighboring countries and across the European Union. Baier et al. (2018) found that in Germany, 46% of EMS workers were dissatisfied with their current job, and 54% intended to leave their position within the next year(19). Compared to the findings of Linda Aiken et al., who investigated job satisfaction among nurses across 11 European countries and the U.S., the present results are more favorable, except for Greece, which reported higher nurse job satisfaction(20–23). Furthermore, Aiken's research highlighted a strong correlation between job satisfaction, turnover intentions, and care quality(19). Patterson et al.(24) studied job satisfaction among EMT-Basics and EMT-Paramedics and found that it varied based on several key personal and organizational factors. They recommended conducting longitudinal studies to better understand how these factors predict job satisfaction over time. Ultimately, the working environment, job conditions, and challenges faced by healthcare professionals in emergency services are strikingly similar worldwide, regardless of the model or organizational structure of EMS. Therefore, the development of effective ergonomic and health-related interventions to sustain and improve the well-being of employees within specific cultural and societal contexts requires a thorough assessment. This assessment should aim to optimize the balance between the demands of the job and the economic and social rewards, such as salary, status, and recognition offered as compensation, while also supporting family life.

A limitation of this study is the relatively small sample size, as 97 respondents from two Croatian counties participated out of 120 distributed questionnaires. In addition, the cross-sectional design and the use of self reported

data may limit generalizability and preclude causal inference.

Conclusion

This study highlights the importance of the nursing work environment in relation to job satisfaction and work ability among emergency medical nurses. Favorable perceptions of the practice environment, particularly nurses' participation in hospital work, were associated with higher work ability. The findings may support healthcare managers in identifying organizational areas for improvement aimed at strengthening nurses' work ability and job satisfaction. Furthermore, the results indicate the need for larger, multi-center studies across emergency medical services in Croatia to confirm these findings and support the development of evidence-based organizational strategies. The study may also contribute to international discussions on improving working conditions in emergency medical services across different healthcare systems.

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Radno okruženje, zadovoljstvo poslom i radna sposobnost medicinskih sestara i tehničara u hitnim medicinskim službama: pilot-studija

Sažetak

Cilj: Ispitati povezanost između sestrinskog radnog okruženja, zadovoljstva poslom i radne sposobnosti među medicinskim sestrama i tehničarima u hitnim medicinskim službama.

Metode: Ova presječna pilot-studija provedena je među medicinskim sestrama i tehničarima zaposlenima u hitnoj medicinskoj službi u dvije hrvatske županije od svibnja do srpnja 2024. godine. Podaci su prikupljeni ispunjavanjem upitnika koji uključuje sociodemografska obilježja i dva validirana instrumenta (PES-NWI i WAI). Primijenjeni su neparametrijski testovi, korelacijska analiza te bivarijatna i multivarijatna logistička regresija.

Rezultati: Ukupno je 90 ispitanika (92,8%) imalo dobru ili izvrsnu radnu sposobnost (WAI). Dostatnost kadra i resursa značajno se razlikovala među radnim okruženjima (P = 0,002), pri čemu je niži WAI zabilježen kod dispečera ili osoblja za nehitni medicinski prijevoz (medijan 38,8) u usporedbi s Timom I (medijan 43,0) i Timom II (medijan 44,5) (P < 0,001). Radna sposobnost bila je značajno povezana s radnim okruženjem, zadovoljstvom poslom i vjerovanjem u nadolazeće reforme zdravstvenog sustava, pri čemu je najjača povezanost uočena između zadovoljstva poslom i uvjerenja u poboljšanja zdravstvene skrbi (Spearmanov rho = 0,725). U multivarijatnoj logističkoj regresiji sudjelovanje medicinskih sestara u bolničkom radu predviđalo je izvrsnu radnu sposobnost (OR 1,81; 95% CI 1,16–2,83).

Zaključak: Rezultati upućuju na to da su obilježja radnog okruženja medicinskih sestara povezana sa zadovoljstvom poslom i radnom sposobnošću medicinskih sestara u hitnoj skrbi, naglašavajući potencijalnu važnost podržavajućeg vodstva, odgovarajuće kadrovske popunjenosti i mogućnosti stručnog sudjelovanja.

Ključne riječi: sestrinstvo u hitnoj medicini; radno okruženje; zadovoljstvo poslom; pilot-studija