

## **COST OF WORKING IN INTENSIVE CARE UNITS: STRESS IMPACT ON EMPATHY AND WORK ABILITY OF HEALTHCARE PROFESSIONALS**

### **CIJENA RADA U INTENZIVNOJ NJEZI: UTICAJ STRESA NA EMPATIJU I RADNU SPOSOBNOST ZDRAVSTVENIH RADNIKA**

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#### **ABSTRACT**

Health care is very stressful profession with number of risks. Stress at work is overall present but in some departments more than other, especially in intensive care units. Assessing working conditions of 100 healthcare professionals regarding stress impact on empathy and work ability was the primary goal of this study. Survey was conducted in order to identify differences between work in intensive care units and other clinical departments all related to empathy, work ability and stress perceiving. In research group of intensive care units, lower empathy quotients, poorer work ability and different stressors were registered compared to research group other departments. Regarding influence of gender, females had better work ability in both groups but in a group of intensive care units males were more empathetic. Main conclusion of study states different dynamic in working environment of intensive care units compared to other departments that could potentially have negative effect on personal capacity of healthcare professionals.

**Keywords:** intensive care, empathy, work ability, stress.

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## SAŽETAK

Zdravstvo je stresna profesija koja sa sobom nosi niz rizika. Iako je stres sugdje prisutan, na nekim odjeljenjima je intenzivniji posebno jedinica intenzivne njege. U radu je obuhvaćeno 100 zdravstvenih radnika sa ciljem procjene stresogenosti uslova rada i njihov efekat na empatiju i radnu sposobnost. U istraživačkoj grupi zdravstvenih radnika zaposlenih u jedinicama intenzivne njege registrovani su niži koeficijenti empatije, lošija radna sposobnost i različita percepcija stresora na radu u odnosu na zdravstvene radnike sa ostalih odjeljenja. U pogledu spolnih razlika, u obje grupe žene su imale bolju radnu sposobnost, dok su u grupi intenzivne zdravstvene njege bile manje empatične u poređenju sa muškarcima.

Opšti zaključak studije je da različita dinamika u jedinicama intenzivne njege u poređenju sa drugim odjeljenjima, može imati negativan efekat na lične potencijale zdravstvenih radnika.

**Ključne riječi:** intenzivna njega, empatija, radna sposobnost, stres

## INTRODUCTION

The health professionals employed in the intensive care units are facing a very challenging patients and advancing medical technology. Intensive care includes the supervision, care, treatment and maintenance of the lives seriously ill or injured patients. By its nature, working in such conditions is highly stressful considering constant dealing with suffering, pain and death, in which many interventions are ungrateful, unpleasant, often degrading and some simply terrifying (Hingley, 1984). Any such situation that requires a healthcare professional to do what he or she cannot, should not, or does not want is termed a stressful situation, and represents a discrepancy between environmental demands and individual opportunities (Stansfeld and Candy, 2006).

In their study, Buddeberg-Fischer et al. (2005) point out that health professionals in intensive care units experience work overload, burnout syndrome, decreased work satisfaction, and thus are more susceptible to psychological distress. Most often, stressful situations are caused by the individuals' complicated nature of work tasks as well as different and vague expectations for the task. The stated ambivalence of the situation leads to the lack of proper feedback, conflicts of opinion, which creates pressure of timelines and the need for reorganization of work roles. This way, both individual and organization are damaged. The first tangible consequence of these conditions is a decline in empathic behavior. There are different ways of defining empathy, but most authors agree it is an understanding that improves diagnostic outcomes in the clinician-patient relationship, and has significant psychotherapeutic and counseling effects (Feudtner, Christakis, & Christakis, 1994; Ickes, 1997). Levasseur and Vance (1993) find that empathy is not a psychological or emotional experience, nor a psychological leap into another person's mind, but an openness and respect for one's personality. Analyzing the emotional aspect of the health profession and its impact on burnout syndrome, it is noted that, although low association with common work stressors (organizational problems, time pressure to complete tasks, etc.), there is a significant correlation between empathic response to patient and work performance.

The emotional weight of working with patients, after eliminating the impact of gender, age, social support, has the strongest effect on the empathy level in healthcare professionals (Cadman and Brewer, 2001). Working in conditions of prolonged stress leads to a health status deterioration and consequently, a decline in working ability. Work capacity includes individual and work factors that are relevant to a person's ability to cope with working conditions (Ilmarinen et al., 1999). It is basically a subjective perception of one's work ability. Ilmarinen et al. (1999) see person with good work ability as one who can adapt to the demands and influences of the workplace, without impairing his or her physical or mental health.

In the context of this definition, motivation for work, ability to adapt, responsibility, concentration, persistence and satisfaction with work are the basic factors that determine social maturity and mental health, and represent work performance (Skakić and Trajanović, 2011). However, healthcare professionals in intensive care units are burdened with additional risk.

Hasselhorn et al. (2003) point out that healthcare professionals working in intensive care units and emergency rooms share the same stressors as healthcare professionals in other departments, but the nature of work in intensive care units and emergency rooms is different than in others. Studies that measured healthcare professionals work ability index (WAI) in the intensive care unit indicate that they are significantly smaller compared to other wards. Emergency medical units with the lowest index values are particularly emphasized, which is explained by the large number of patients, intense stress, rapid decision making, and the nature of the work itself in these departments (Nowrouzi, 2013).

The aim of this study was to determine is there a difference between stress perception, empathy and work capacity in relation to gender, work experience between healthcare professionals working in different clinical departments.

## **RESEARCH MATERIAL AND METHODS**

Present study by design was cross sectional with target population of healthcare professionals from different clinical departments of the University Clinical Center Tuzla (UKC Tuzla) and the Tuzla Health Center. The survey was self-assessed with standardized questionnaires conducted by online. Participants were informed of the study purpose and their participation was voluntary and anonymous.

### **Participants**

The study sample included 100 health professionals (50 from Intensive Care Unit and 50 other clinical departments) including doctors, nurses and technicians with higher and university level of education, employed by local University Clinical Center and Health Center.

## Design and Procedures

Participants in the study were grouped into two research groups. The criteria for the creating research groups were set by workplace (intensive care unit and other departments). Intensive care units group included healthcare professionals working in such departments: intensive care units of Clinic for Internal medicine, Clinic for surgery, Anesthesia and resuscitation clinic, Gynecology and obstetrics clinic, Infectious disease clinic, Psychiatry clinic, Lung disease clinic, Center of palliative care and Pediatric clinic. Participants with work place at Orthopedics and Traumatology Clinics, Radiology and Nuclear Medicine Clinics, Health Center, Clinics for Cardiovascular Surgery, Clinics for Ear, Throat and Nose Diseases were assigned to research group labeled as "other departments". Within the two groups, participants were observed by gender, working experience, perception of work stressors, quotient of empathy (EQ) and work ability index (WAI). The online survey contained general data on participants (clinical ward, gender, working experience) and standardized questionnaires (Cohen-Baron's empathy questionnaire, Questionnaire of workplace stress assessment by healthcare professionals, and Work Ability Index Questionnaire).

## Measures

Empathy Questionnaire by Baron-Cohen and Wheelwright (2004) is a 4-point self-assessment scale. It consists of 60 items divided into two groups: 40 items (measure empathy), and 20 items are "filter items" that reduce respondents' bias in giving socially desirable answers and focusing on empathy. Half of the scores that measure empathy were formed by denying responses and the other half by affirming, also to eliminate bias in the affirmative/negative responses. The range of empathy scores is set 0-80. Correspondent empathy coefficients (EQ) based on points was set (low EQ: 0-32; average EQ 33-52; above average EQ 53-63; high EQ 64-80).

Questionnaire of workplace stress assessment by healthcare professionals (WHO, 2010) in the first part contains general information (gender, age, level of education, occupation, workplace, length of total work experience, length of work experience in the present workplace, working time). The second part was related to workplace stressors. Participants were offered 37 work stressors pertaining to work organization, shift work, career advancement, education, professional requirements, interpersonal communication, and fear of health hazards and harms. Respondents rated the experience of stressors on a Likert-type scale (1- not stressful at all; 2- rarely stressful; 3- sometimes stressful; 4- stressful and 5- extremely stressful). Stressors are grouped into 6 factors: (F1-Workplace organization and financial matters; F2- Public criticism and lawsuits; F3- Dangers and harms at work; F4-Conflicts and communication at work; F5- Working hours and shifts and F6- Professional and Intellectual Demands.

Work Ability Index (WAI) questionnaire was used to evaluate the subjective rating of work ability compared to the best level in life; subjective assessment of work ability in relation to the physical and mental demands of the workplace; number of diagnosed illnesses, subjective impact of illness on work, sickness over the past year, personal prognosis of working ability for the next two years and questions about mental health and satisfaction. The total WAI score was categorized as: poor work ability (7-27), moderate work ability (28-36); good working ability (37 - 43) and excellent working ability (44 - 49).

### **Statistical Analysis**

Standard Statistical Package (SPSS) version 20.0 was used to analyze the results. Differences between two studied groups were assessed using t-test for independent samples and for three or more subgroups of participants, one-way analysis of variance (ANOVA). The correlation between the continuous variables was expressed by the value of Pearson correlation. Statistical significant was set at below 0.05.

### **RESULTS AND DISCUSSION**

In gender structure of sample, men made up 49% and women 51%. The average experience of the participating health professionals was 13 years ( $13.05 \pm 1.52$ ). No significant difference was observed in the sample of respondents in terms of gender difference, job affiliation, as well as respondents' working experience ( $t = 0.766$ ;  $df = 98$ ;  $p = 0.446$ ). In general, average EQ ( $41.08 \pm 10.04$ ) and moderate work ability ( $35.21 \pm 8.1$ ) are recorded on the overall sample (Table 1).

Table 1. Descriptive measures of overall sample

Characteristics	N	M (SD)
	%	
<b>Gender</b>		
Male	49	1.41 (0.75)
Female	51	
<b>Total working experience</b>		
<5 years	15	13.05 (1.52)
5-10 years	10	
11-15 years	13	
16-20 years years	12	
> 20 years	50	
<b>Empathy Quotient (EQ)</b>		
Low	18	41.08 (10.04)
Average	73	
Above average	7	
High	2	
<b>Work Ability Index (WAI)</b>		
Poor work ability	18	35.21 (8.1)
Moderate work ability	34	
Good working ability	34	
Excellent working ability	14	
Total N	100	

$t_{(98)}=0.766$ ;  $p=.446$ ; N- number of participants; M-mean; SD- standard deviation

Healthcare professionals in intensive care units experience workplace stressors differently from colleagues in other hospital departments (Table 2). The two research groups differ significantly in the perception of the most stressful factor. The factors "Organization of work and finance" and "Danger and harm at work" are the most stressful for group-intensive care units, while the group-other departments "Conflicts and communication at work" identify as the most stressful ( $p < 0.05$ ).

Table 2. Distribution of Stress Factor Assessment by clinical department

Stressors	Clinical department	
	Intensive care unit M( $\pm$ SD)	Other departments M( $\pm$ SD)
F1- Workplace organization and financial matters	65.04 (14.55)*	57.87 (21.03)
F2- Public criticism and lawsuits	68.91 (19.35)	66.37 (22.96)
F3- Dangers and harms at work	78.07 (10.6)*	72.10 (7.68)
F4- Conflicts and communication at work	65.23 (24.72)	58.94 (27.10)*
F5- Working hours and shifts	42.24 (10.37)	54.88 (9.59)
F6- Professional and Intellectual Demands	58.87 (22.89)	53.69 (21.91)
Overall experience of stress	68.56 (16.27)	61.41 (19.22)
Empathy/scor	39.0 (10.81)	42.92 (9.01)
WAI	34.54 (8.36)	35.81 (7.95)

WAI- Work ability index; M- mean; SD-standard deviation

\*ANOVA  $F=3.67$ ;  $p<0.05$

Similar to present findings, Lu et al. (2015) found in their study that healthcare professionals on emergency hospital admissions experienced constant stressful work during shifts, worrying about work errors, inability to move forward, insufficient staff number, while patients family indecency, poor work environment and administration are the least stressful. At the individual level, the results of independent studies (Duquette et al., 1994; Robinson and Pennebaker, 1991) for the most common stressors register: overload/constant increase in workload, poor communication with colleagues and superiors, imbalance of investment and outcomes in the clinician-patient relationship, and inadequate sense of self-actualization. The effect of these stressors were negative, because they prevent health professionals from satisfactorily completing their work tasks and thus personal satisfaction at work, and as a consequence, they have a sense of failure to fulfill the essence of their vocation. In the affective area, mood swings were the most common acute stress response, as opposed to decreased satisfaction, mental health disorders and burnout syndromes that develop as a long-term response to prolonged stress (Maslach et al., 2001). The decline in job performance is not necessarily present because the individual in stress puts more effort into performing tasks, but an increase in violent behavior, interpersonal conflicts, and hostile behavior is possible (Hockey, 1997). Such occurrences are indicators of a decline in empathy capacity. In this study, significantly lower ( $p < 0.05$ ) empathy scores and work ability indexes were also registered in the intensive care unit group, and stress intensity was perceived as more stressful than subjects in other departments (Table 3).

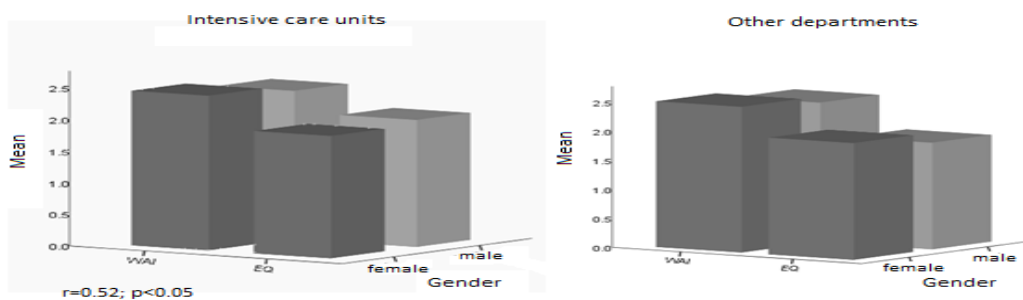
Table 3. Average values of healthcare professional characteristics by clinical department

	Intensive care unit	Other departments
	M (SD)	M (SD)
Total working experience /years	12.85 (1.63)	13.25 (1.42)
Empathy/score	39.0 (10.81)*	42.92 (9.01)
WAI	34.54 (8.36)*	35.81 (7.95)
Overall experience of stress	68.56 (16.27)*	61.41 (19.22)
N	47	53

WAI- work ability indeks; M- mean; SD-standard deviation

\* $t_{(98)}=14.35$ ;  $p<0,05$

The results of this study suggest that there are differences in empathy among healthcare professionals working in departments who have different patient contact. In both types of workplaces (intensive care units and other departments) average levels of empathy were registered, but the range of score was lower in intensive care units. In addition to work experience, the department in which healthcare professionals perform their work tasks significantly determines the development of empathy. Past experiences support the assumption that the amount of patient contact is a condition of empathy. The results of the study by Newton et al. (2000) support the results of this research. The authors report that health care professionals in the field of family medicine and pediatrics have more immediate empathy than their colleagues in the field of interventional medicine. Similar studies are reported by other studies where 94% of healthcare professionals are considering leaving the profession and 54.7% have a negative attitude towards work and are dissatisfied (Ilmarinen et al., 1999). When effects of aging, poor lifestyles, impaired physical health and frequent illness are added, poor work ability is a necessity (Fakhr-Movahedi et al., 2011). In a similar longitudinal study, Enzman (1995) emphasizes empathy (enjoyment and empathic distress) as the only dimension of burnout associated with work stressors (pressing deadlines, coping with severe illness and death). Some studies separately were interested in gender impact on empathy and work ability in various professions. In this study, the impact of gender on empathy as well as on work ability index was in significant ( $r=0,52$ ;  $p<0.05$  in the two research groups. In the intensive care unit, women had better working ability, but men were more empathetic, unlike other departments where women significantly scored more ( $p <0.05$ ) in both, work ability and empathy (Chart 1).



Graph 1. Correlation between Work Ability Index (WAI) and empathy (EQ) by clinical department



Available studies show different results when it comes to the gender difference in the healthcare professional's empathy. In their study, Hoyat et al. (2002) found slight differences of empathy in healthcare professionals with respect to gender. The result is interpreted by fact that although the justification of the hypothesis of female sexuality regarding empathy, which is most often due to the educational style of girls, is justified, the nature of the health profession influences the necessity of empathic behavior irrespective of the gender. In most studies, men achieve lower scores than women on empathy tests, but statistically, such a difference was not significant. In their study, Slaski and Cartwright (2002) demonstrated an association between empathy and stress, health and work performance. They concluded that individuals who have a high performance on the empathy test experience significantly less work stress and were in better health.

## CONCLUSION

Stress and emotional exhaustion have been recognized as the main reasons why healthcare professionals have long sick leave and, consequently, leave the profession. Although the healthcare profession is extremely stressful, some members of the profession are more vulnerable than others, healthcare professionals working in intensive care units, in particular. Complex working conditions leads to a decrease in their work capacity, and in their mutual contact with patients and colleagues they show less empathy compared to other healthcare professionals.

## LITERATURE

1. Baron-Cohen S., Wheelwright, S. (2004). The Empathy Quotient: An Investigation of Adults with Asperger Syndrome or High Functioning Autism, and Normal Sex Differences. *Journal of Autism and Developmental Disorders*, 34, 163-175.
2. Buddeberg-Fischer, B., Klaghofer, R., Buddeberg, C. (2005). Stress at work and well-being in junior residents. *Z Psychosom Med Psychother.*, 51 (2): 163-78
3. Cadman, C., Brewer, J. (2001). Emotional Intelligence: a vital prerequisite for recruitment in nursing. *Journal of Nursing Management*, 9, 321-4.
4. Duquette, A., Kerouac, S., B. Sandhu, B., Beaudet, L. (1994). Factors relating to nursing burnout: a review of empirical knowledge. *Issues in Mental Health Nursing*, 15, 337-58.
5. Enzmann, D. (1995). *Stressed, exhausted, or burned out? Effects of working conditions, empathy and coping on the development of burnout*. Munich: Profil.
6. Fakhr-Movahedi A, Salsali M, Negharandeh R, Rahnavard Z. (2011). A qualitative content analysis of nurse-patient communication in Iranian nursing. *Int Nurs Rev*, 58 (2): 171-180.
7. Feudtner, C., Christakis, D.A., Christakis, N.A. (1994). Do clinical clerks suffer ethicalerosion? Students' perception of their ethical environment and personal development. *Academic Medicine*, 69, 670-679.

8. Hasselhorn, H.M., Tackenberg, P., Müller, B.H. (2003). *Working conditions and intent to leave the profession among nursing staff in Europe*. National Institute for Working Life. Sweden: Stockholm.
9. Hingley, P. (1984). Humane face of nursing. *Nurs Mirror*, 159(21): 19-22.
10. Hockey, G.R.J. (1997). Compensatory control in the regulation of human performance under stress and high workload: A cognitive-energetical framework. *Biological Psychology*, 45, 73–93.
11. Hojat, M., Gonnella, J.S., Nasca, T.J., Mangione, S., Vergare, M., Magee, M. (2002). Physician Empathy: Definition, Components, Measurement, and Relationship to Gender and Specialty. *Am J Psychiatry*, 159, 1563–1569.
12. Ickes, W. (1997). *Empathic accuracy*. New York: Guilford Press.
13. Ilmarinen, J., Jarvisalo, J., Koskinen, S. (1999). *Dimensions of work ability*. Results of the Health 2000 Survey. Helsinki.
14. Levasseur, J., Vance, A.R. (1993). *Doctors, nurses, and empathy*. In Spiro H.M., G.McCrea Curnen, Peschel, M.E., St. James, D. (Eds.), *Empathy and practice of medicine* (pp. 76–84). New Haven: Yale University Press.
15. Lu, D.M., Sun, N., Hong, S., Fan, Y.Y., Kong, F.Y. (2015). Occupational stress and coping strategies among emergency department nurses of China. *Arch Psychiatr Nurs*. 29(4):208-12.
16. Maslach, C., Schaufeli, W.B. Leiter, M.P. (2001). Burnout. *Annual Review of Psychology*, 52, 397–422.
17. Newton, B.W., Savidge, M.A., Barber, L., Cleveland, E., Clardy, J., Beeman, G., Hart, T. (2000). Differences in medical students' empathy. *Acad Med*, 75, 1215-1230.
18. Nowrouzi B. (2013). Quality of Work Life: Investigation of Occupational Stressors among Obstetric Nurses in Northeastern Ontario. *ZJRMS*, 15(2): 292–301.
19. Robinson, R. J., Pennebaker, J. W. (1991). Emotion and health: Towards an integrative approach. In K. T. Strongman (ed.) *International Review of Studies on Emotion*, Vol. 1. Chichester, UK: John Wiley & Sons.
20. Skakić, O., Trajanović, L.J. (2011). Procena radne sposobnosti mentalno obolelih osoba u uslovima društveno-ekonomske krize. *Medicinski Pregled*. LXIV (1-2): 41-45.
21. Slaski, M., Cartwright, S. (2002). Health performance and emotional intelligence: an exploratory study of retail managers. *Stress and Health*, 18(2), 63–9.
22. Stansfeld SA, Candy B. (2006). Psychosocial work environment and mental health—metaanalytic review. *Scandinavian Journal of Work, Environment, and Health*. 32:443–462.