MULTIDIMENSIONAL DIAGNOSIS OF OCCUPATIONAL PRESSURE PERCEPTION FOR THE MEDICAL STAFF OF AN INTENSIVE CARE UNIT (ICU)

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Abstract: *Intensive Care Units (ICU) medical staff is frequently subject of great amount of psychological and physical occupational pressure. There are three main sources of pressure: professional responsibility for the medical act, organizational requirements and interpersonal/intrapersonal relationships.*

Materials and method: *The paper presents a study on the multidimensional diagnosis of occupational pressure/stress perception of the medical staff of an ICU (N=34). The romanian form of Pressure Management Indicator (PMI) [1][2][3][7] was applied to all participants. The instrument is designed for multidimensional evaluation of occupational stress. The objective was to identify specific indicators of occupational pressure and formulate predictions regarding the different variables.*

Results and conclusions: *Data analysis showed, for example, that Influence and Control (as personality factors/individual differences) are good predictors for the resilience level in the studied ICU medical staff. We can conclude that individual differences regarding personality factors are the main variables that significantly influence the occupational stress coping for ICU medical staff. The PMI-RO diagnosed profile, resulted for the ICU medical staff showed many differences comparing with general population, including sources of pressure, coping strategies, personality factors, organisational satisfaction and self evaluation of performance. Further implications of the study and intervention strategies for medical personnel in ICU are discussed.*

Keywords: Pressure Management, ICU medical staff

1. Introduction

Intensive Care Units (ICU) medical staff is frequently subject of great amount of psychological and physical occupational pressure, due to stressful situations for patients, relatives and other professionals. “A growing body of evidence suggests that burnout among ICU nurses and ICU physicians is a remarkable result of the demanding and continuously high stress work environment. It has been suggested that ICU professionals could be emotionally affected by end-of-life issues, ethical decision making, observing the continuous suffering of patients, disproportionate care or medical futility, miscommunication, and demanding

relatives of the patients. Moreover, many patients in the ICU lack decision making capacity; therefore, the healthcare professionals depend on communication with relatives for decision making, which can complicate the communication process. In addition, the ICU work environment has become increasingly technical, which requires extended skills in advanced life sustaining medical therapies” [6, p.2]. The intense stress environment that ICU professionals practice in, are highly demanding on cognitive level (loss of attention concentration, errors in decision making, irritability or hostility, low self-confidence), on physical level (sleeping disturbances, headaches, low back pain)

and on *emotional level* (emotional burnout, compassion fatigue, guilt or helplessness). The purpose of this study was to offer a multidimensional diagnosis of the perception of occupational pressures at individual and group/department level for Romanian medical staff in an ICU, for improving professional life and proposing specific intervention/ management strategies.

2. Methodology

2.1. Participants

As participants for this research, we included 34 health care professionals from an ICU (doctors and nurses), with the following demographic characteristics: 11 males (32.4%), 23 females (67.6%), average age in organization 15.47 years, with a standard deviation of 8.87; type of occupation / position: 21 nurses (61.8%) and 13 physicians (38.2%), 25 of the participants have university diploma.

2.2. Instruments

The participants have completed the romanian translated and adapted version of the *Pressure Management Indicator* (PMI-RO [1,2,3,7], that includes a biographical questionnaire, eight scales and 24 subscales, that measure the sources and effects of socio-professional pressures, coping strategies and individual differences. After filling out the questionnaire, scoring it and transforming the data in percentile

scores, we obtain a profile/graph for the studied ICU staff, that can be compared to other profiles or to the adapted cultural standard. The graph that figure the profile of the related indicators and scales of occupational stress for the participants of this study, will be presented in the results section.

3. Results

The data were processed through a specialized statistical program. In the first stage of data processing, descriptive statistical values have been obtained, then, by examining significant relationships between the measured variables, correlation analysis was processed. For examining the role of possible significant predictive variables, regression analysis was used.

3.1. Descriptive analysis

We have selected some significant descriptive data. Regarding the *motivation for performing overtime work hours* of the medical staff, Table 1 shows the frequencies for each type of motivation. It is also important that all 34 participants declare they work overtime every week (an average of 49.65 hours/week). The tipe of motivation shoes that an important amount of overtime working hours is due to complete the work and the fact that it is expected from them. This can be interpreted as task overload, lack of efficiency and/or a high level of obeisance to authority.

Table 1 *The motivation for performing overtime work (hours)*

Valid	Type of motivation	Frequency	Percent
	Personal/ own choice	10	29,4
	It is expected from me	12	35,3
	To complete the work started	12	35,3
	Total	34	100,0

Self-evaluation of performance is shown in Figure 1, with an average of 85.74 and a standard deviation of 11.66: the self-

perceived evaluation of occupational performance indicates a trend of positive relative high level of self-assessment.

Figure 1: Self-evaluation of occupational performance

3.2. The profile of pressure management indicator for the ICU medical staff

After calculating the scales and subscales scores of the PMI questionnaire and transforming them into percentiles we obtained the resulting profile shown in Figure 2. The following aspects, we are particularly interested in the study:

- The ICU staff perceive relatively high levels of sources of pressure regarding: *recognition, daily hassles, workload, organisational climate and managerial role*, and relatively low pressure came from *home/work balance* and *personal responsibility*;
- As coping strategies, they use more the *life/work balance* (this explains the low score on this aspect as pressure source showing in the previous paragraph) and the *problem focus strategies*, and they tend to use less the *social support*;

- Analysing the role of personality and individual differences, the profile shows lower levels of perceived *personal influence* and *control* than the occupational standards, and above mean scores on *drive A* and *impatience*.
- Regarding the perceived effects of occupational stress/pressures we can observe that the participants declare low levels of *organisational satisfaction* and *confidence*, medium level of *job satisfaction*, lower levels of *physical well-being* and *energy level*, but surprisingly high levels of *resilience, organisational commitment, state of mind* and *organisational security*.

This findings will be discussed more in the conclusion section of the paper.

ANNEX 1

THE EVALUATION (IN CENTILES) OF INDICATORS AND SCALES OF PRESSURE MANAGEMENT INDICATOR

PARTICIPANTS N = 34 ICU medical staff

Figure 2: The profile of pressure management indicator for the ICU medical staff

3.3. Correlational analysis and predictors of the effects of occupational pressures

We present a selection of interesting significant correlations between the measured variables:

- Gender with energy level: $r = -.48$ ($p < .01$), social support: $r = .44$ ($p < .01$), physical well-being: $r = -.37$ ($p < .05$) - women tend to experience higher levels of energy loss and physical symptoms

- than men, but tend to use more often social support as a coping strategy;
- The number of real overtime work-hours/week the medical staff really do with *organisational commitment*: $r=.34$ ($p<.05$), *personal influence*: $r=.36$ ($p<.05$), *organisational security*: $r=-.38$ ($p<.05$) and *type A drive*: $r=-.44$ ($p<.01$) - the more extra work hours they report, the more they have a feeling of commitment and personal influence, but experience a decrease of the level of organisational security and less type A drive;
 - The amount of *months/professional experience* in the ICU with *pressure from relationships*: $r=-.43$ ($p<.01$), *organisational climate*: $r=-.35$ ($p<.05$), *personal responsibility*: $r=-.44$ ($p<.01$) – a longer professional experience is due with a lower level of pressure;
 - *Self-evaluation* (0-100 scale) with the coping strategy *life-work balance*: $r=-.35$ ($p<.05$) – participants who score high on *self-evaluation on professional performance* tend to score low on *life-work balance* coping strategy. We infer that the high scores on self-evaluation for our studied group have some causes that were not measured with this instrument;
 - *Job satisfaction* with *energy level*: $r=-.33$ ($p<.05$), *drive A*: $r=-.38$ ($p<.05$), and *control*: $r=-.35$ ($p<.05$);
 - *Organisational satisfaction* with *drive A*: $r=-.41$ ($p<.05$);
 - *Organisational security* with *physical well-being*: $r=.34$ ($p<.05$), and *daily hassles*: $r=-.35$ ($p<.05$);

- *Organisational commitment* with *personal influence*: $r=.40$ ($p<.05$), and *problem focus*: $r=.55$ ($p<.01$);
- *State of mind* with *physical wellbeing*: $r=.67$ ($p<.01$), *energy level*: $r=.70$ ($p<.01$), *drive A*: $r=.38$ ($p<.05$), *impatience*: $r=-.37$ ($p<.05$), and *control*: $r=.46$ ($p<.01$);
- *Resilience* with *confidence level*: $r=.34$ ($p<.05$), and *control*: $r=.51$ ($p<.01$);
- *Physical symptoms* with *life/work balance*: $r=-.46$ ($p<.01$) and *confidence level*: $r=.48$ ($p<.01$);
- *Energy level* with *recognition*: $r=-.35$ ($p<.05$) and *organisational climate*: $r=-.35$ ($p<.05$).

To identify and test predictor patterns, linear regression analysis, for explanatory purposes was applied. In the following tables (2, 3, 4, 5) we have identified the following predictors for specific effects of occupational pressures:

- *Problem focus* is a significant positive predictor for *organisational commitment* ($\beta=.558$, $p<.001$): table 2;
- *Drive A* is a significant positive predictor for *state of mind* ($\beta=.384$, $p<.02$): table 3;
- *Control* is a significant positive predictor for *resilience* ($\beta=.510$, $p<.002$): table 4;

The regression model comprised of 3 combined factors (*drive*, *impatience* and *life/work balance*) predicts significantly the level of *experiencing physical symptoms/physical well-being* (Table 5).

Table 2 Problem focus as predictor for Organisational Commitment

Coefficients ^a					
Model		Unstandardized Coefficients		Standardized Coefficients	t
		B	Std. Error	Beta	
1	(Constant)	8.360	3.613		2.314
	Problem Focus	.506	.133	.558	3.808

a. Dependent Variable: Organisational Commitment

Table 3 Drive A as predictor for State of mind

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.771	5.926		.974	.337
	Drive	.964	.410	.384	2.350	.025

a. Dependent Variable: State of Mind

Table 4 Control as predictor for Resilience

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.093	2.397		4.211	.000
	Control	.493	.147	.510	3.352	.002

a. Dependent Variable: Resilience

Table 5 Drive A, Impatience and life/ work balance as predictors for Physical symptoms/ physical well-being

Coefficients ^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	29.152	5.448		5.351	.000
	Drive	.600	.179	.420	3.350	.002
	Patience/Impatience	-.445	.157	-.355	-2.840	.008
	Life/ Work Balance	-.832	.219	-.477	-3.802	.001

a. Dependent Variable: Physical Symptoms

Summarising, specific individual differences on personality and coping strategies are significantly influencing how the ICU medical staff manages to cope with occupational stress and various sources of pressure.

4. Conclusions and discussions

The results have identified a specific multidimensional profile of occupational stress for the romanian participants of the ICU medical staff, significant correlations between variables (for example sources of pressure, coping strategies, personality factors, satisfaction and self-evaluation of performance) and specific predictors for the measurable perceived effects of occupational pressures.

These findings support, for example, those of a study [1] about the perception of resilience and indicators of occupational

stress, and those of another study [5] about the quality of predictors of *resilience* and the *attachment to the organization* for *loneliness at work* (LW).

5. Implications of the study and intervention / management strategies

The results of this study could provide useful diagnostic, correlational and predictive information about measurable indicators of the perception of occupational pressures, personality factors, coping strategies and specific effects of stress on individual and group/ department level of the ICU medical staff. Based on these results, similar findings [1,4,5,6] and the experience of intervention in other occupational settings, we suggest the following strategies for improving organisational decisions and for the development of intervention in stress/

pressure management for an ICU medical staff at personal and organizational level:

- stimulating and training social skills, communication and empathic abilities, resilience, trust, emotional intelligence and active coping strategies;
- training relaxation techniques;
- developing more opportunities for social interaction of staff members;
- addressing maladaptive cognitions on control and resilience;
- training technical competence and procedures;

- improving organizational culture, job analysis strategies and work environment.

Further research should focus on better understanding of coping strategies used by highly resilient medical staff and how they maintain a more resilient and healthier psychological profile. Also, an exploration of emotional distress in relation to communication skills, ethical problems, psychological abilities and mindfulness among ICU professionals (longitudinal study) could provide resources for the development of further preventive strategies.

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