

Level of Stress at Nurses Working in Emergency Clinic and Central Intensive Care: University Clinical Centre of Kosovo

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Abstract

Background: Emergency Clinic (EC) and Central Intensive Care (CIC) are high-stress environments that directly affect the health status of nurses. **Methods:** The aim of this study was to assess the level of stress at nurses working in the Emergency Clinic and nurses working in the Central Intensive Care. The study included 90 nurses, 45 nurses working in Emergency Clinic and 45 nurses working in Central Intensive Care. The study applied the Emergency Nurse Stress Questionnaire as an instrument to gather the data. This questionnaire was adopted from the Operational Police Stress Questionnaire in order to serve for the function and aim of the present study. **Results:** Nurses' cohort-age ranged from 20 to 62 years. The largest proportion of respondents 40 (44.4%) was in the 20 - 30 age group, 58 (64.4%) were married, 60 (66.6%) hold bachelor degree and (33.3%) were with secondary school educational level. In terms of work-related fatigue, significant difference was found in working hours, participants reported that there was a significant difference in fatigue between 12 hours shift nurses (61 ± 10.5) compared to 8 hours nurses (41 ± 23.6) with $P < 0.001$. Results indicated that a vast majority of participants reported moderate to high levels of stress (81% of participants). There was no significant difference in the level of stress between the two groups of participants. There were also no significant differences compared to their demographic characteristics. **Conclusion:** These findings emphasize the role of using and assuring adequate strategies for ensuring quality management and finding ways of facilitating the increase in the number of nursing staff in these two departments because workplace overload and fatigue are potential

factors that increase nurses' stress levels.

Keywords

Emergency Clinic, Central Intensive Care, Nurses, Workplace Stress, Fatigue

1. Introduction

The first professionals who attend stressful medical situations, providing care to injured people and those who are critically ill, suspended between life and death, are often constituted staff from the Emergency Medical Services (EMS). Thus, these individuals are often exposed to specific conditions in which they experience occupational stress. Findings of various studies have demonstrated that 55.5% of emergency nurses suffer from extreme occupational stress [1]. The environment is known to be stressful when working in an Intensive Care Unit (ICU). For all ICU healthcare workers, more than the physical work, it is the psychological factor of dealing with the seriously ill patients, which leads to huge mental stress [2] [3]. Occupational stress is an emotional and physical condition that can have damaging effects, and often results from an inability to meet the needs, resources and capabilities that are required of an employee [4]. In recent decades, the effect of occupational stress has become an important global issue in health care and management, with stress providing a major challenge for health institutions [5] [6] [7]. A workplace issue in a number of countries has been identified that nursing is an occupation that has been observed to have high level of stress [6] [8] [9]. For example: According to a study in Iran: between 69% - 75% of nurses have experienced stress [6] [10] with 33% having experienced high levels of stress [11]. Occupational stress has a number of negative consequences including burnout which has long-lasting effects on the individual with impacts on workplace performance and culture [12]. Other impacts of stress include but are not limited to intention to leave the workplace, reduced quality life [11], lower job satisfaction [13], and impaired job performance [14]. Several factors have been identified as being associated with occupational stress in nursing [4]. All factors that make nursing a particularly stressful profession are usually difficult working conditions, long working hours, and shift work [15]. Emergency nurses experience more stress than nurses working in other units in hospitals [16]. Similarly, other studies have found that large international studies have shown that emergency nurses are particularly vulnerable to occupational stress [16]. Nurses working in emergency departments experience exposure to traumatizing incidents such as mutilation, aggression and extreme suffering of patients [16]. The aim of this study was to assess the level of stress at nurses to working in the Emergency department and to compare this with the level of stress at nurses working in the Intensive Care Unit.

2. Methodology

2.1. Study Design

A cross-sectional survey design was used to identify the associations between the study variables.

2.2. Identification of Setting and Sample

The setting for this study was University Clinical Center of Kosovo, respectively Emergency Clinic and Central Intensive Care in Pristina of the Republic of Kosovo. A total of 90 respondents, 45 nurses working at the Emergency Clinic and 45 nurses at Central Intensive Care, participated in this study. The Emergency Clinic has 19 beds and serves as the main emergency center in the country. The average number of patients treated per year is about 70,000. Central Intensive Care has a total of 24 beds, serving within the UCCK. About 600 patients are treated at this center within a year.

2.3. Data Collection

The data were collected between March 2019 and June 2019.

The inclusion criteria were: 1) emergency department nurses with at least one-year experience, and 2) nurses providing direct patient care and 3) Central intensive care nurses with at least one-year experience, and 4) nurses providing direct patient care.

The exclusion criteria were: 1) nurses with less than 1-year experience, 2) nurses working in emergency department management 3) nurse educators, 4) traveler nurses, and 5) registry nurses.

2.4. Instrument

The Emergency Nurses Stress Questionnaire was the first tool used in the study. This questionnaire was modified and adopted from the Operational Police Stress Questionnaire [16]. The tool was designed to look at the stress and health dimension for those who work in high stress occupations. The Emergency Nurse Stress Questionnaire consists of 12-item self-report instrument designed to measure stress in an emergency room nursing. Responses are rated on a 7-point Likert scale from 1 - No stress at all to 7 - A lot of stress.

2.5. Ethical Considerations

This research project was approved and applied taking in consideration the Ethical standards of the Ethical Committee within the Centre Clinic of the University Prishtina, Kosovo. Questionnaires were completed anonymously to ensure participants' confidentiality.

3. Results

The demographic characteristics of the sample are summarized in **Table 1**. The sample consisted of 90 participants, of which 71.11% were women. Nurses' co-

hort-age ranged from 20 to 62 years. The largest proportion of respondents (44.4%) were between 20 - 30 age group with 22.2%, 31 - 40 age group consisted of 16.6%, while in the cohort-age group 41 - 50 and the smallest group was the >50 years age group with 7.7%. The majority were married (64.4%). Regarding their level of education, majority of them were with Bachelor degree level (66.6%) the others reported only secondary school level (33.3%). 50% of nurses worked in Emergency Center Nurses and 50% in Central Intensive Care Nurses. According the stress levels, further classified into low, moderate, and high by taking mean \pm 1 SD as per the suggestion from the author who developed the questionnaire (**Table 2**).

Table 1. Characteristics of participants (N = 90).

Variable	Number (%)
Gender	
Male	26 (28.88)
Female	64 (71.11)
Age (years)	
20 - 30	40 (44.4)
31 - 40	28 (22.2)
41 - 50	15 (16.6)
>50 years old	7 (7.7)
Marital status	
Married	58 (64.4)
Unmarried/divorced/widowed	25 (35.5)
Level of education	
Secondary school	30 (33.3)
Bachelor degree	60 (66.6)
Work-place	
Emergency Center Nurses	45 (50)
Central Intensive Care Nurses	45 (50)

Table 2. Operational and organisational stress scores.

Average stress rate	
Mean (SD)	78.2
Median	80.7
Mode	76
Minimum	22
Maximum	135
Stress classification,	n (%)
Low	11 (12.22)
Moderate	47 (52.22)
High	32 (35.55)

The causes of operational stress, and their frequency among respondents are given in **Table 3** and **Table 4**. Questionnaire referenced [16] asked questions about operational causes of stress level there were 12 operational based questions in total, and these 12 questions were analyzed in two sectors: Emergency Clinic and Central Intensive Care. The study found that moderate to high stress level of stress was present in both groups of nurses working in Emergency Clinic and Central Intensive Care. Respondents' reported moderate to high levels of stress in 81% of participants. There was no significant difference in the degree of stress between the two groups of participants. There were also no significant differences in their demographic characteristics. For more detailed data, a reference could be found at [**Table 3** and **Table 4**].

Significant differences were found in working hours, where nurses working 12-hour shifts reported higher level stress of stress compared to nurses working only 8 hours per day ($P < 0.002$). Participants also reported that there was a significant difference in fatigue between 12 hours shift nurses compared to 8-day nurses ($P < 0.001$). These data and presented in **Table 5**.

4. Discussion

The study aimed at assessing the level of stress at nurses who work in the Emergency Clinic and those in the Central Intensive Care. It applied the Emergency Nurse Stress Questionnaire as an instrument to gather the data among 90 nurses, 45 nurses working in Emergency Clinic and 45 nurses working in Central Intensive Care. The distribution of both clinics for the sample was practically equal, enabling thus the adequate comparisons of the level of the stress among the

Table 3. Causes of operational stress with percentage of subjects reporting them.

No.	Emotional stressors at Emergency Centre	Percentages of respondents who reported stress (moderate stress and above)
1	Not enough time available to spend with friends and family	88
2	Fatigue	86
3	Traumatic events	85
4	The risk of being injured on the job	84
5	Occupation related health issues	81
6	Shift in work	74
7	Finding time to stay in good physical condition	71
8	Feeling like always on the job	69
9	Making friends outside the job	59
10	Limitations to social life	56
11	Friends/family feel the effects of the stigma associated with job	54
12	Managing social life outside of work	49

Table 4. Causes of operational stress with percentage of subjects reporting them.

No.	Emotional stressors at Central Intensive Care	Percentages of respondents who reported stress (moderate stress and above)
1	Not enough time available to spend with friends and family	74
2	Fatigue	85
3	Traumatic events	69
4	The risk of being injured on the job	59
5	Occupation related health issues	81
6	Shift in work	84
7	Finding time to stay in good physical condition	71
8	Feeling like always on the job	56
9	Making friends outside the job	54
10	Limitations to social life	86
11	Friends/family feel the effects of the stigma associated with job	49
12	Managing social life outside of work	88

Table 5. Level of stress measurement data between nurses according to shift switch in work and the fatigue.

Variable	Shift in work (n = 90) Mean ± SD	Fatigue (n = 90) Mean ± SD
8 hours	40 ± 22.9	41 ± 23.6
12 hours	60.9 ± 11.6	61 ± 10.5
P value	P < 0.002	P < 0.001

sample. The Emergency Clinic and Central Intensive Care are both challenging work environments as evidenced by high quantitative demands, traumatic events, stress, fatigue, burnout and occupation related health issues, work shift and work pace, and the feeling like being always in charge the job. Results of the present study indicate moderate to high stress levels in both groups of nurses, those working in Emergency Clinic and Central Intensive Care. With regard to the stress level, significant differences were found in the working hours. Hence, from the results, it can be stressed that nurses working in a 12-hours' shifts have reported higher levels of stress compared to nurses working only 8 hours shifts per day. Furthermore, the results have also shown significant difference regarding the work fatigue between nurses who work 12 hours shift compared to those who work 8 hours shift per day. Hence, nurses working on a shift of 12-hour have reported higher level of stress (60.9 ± 11.6) compared to nurses working only on a 8 hours shift per day (40 ± 22.9) with $P = 0.002$. In addition, results indicated that there was a significant difference in work fatigue between 12 hours shift nurses (61 ± 10.5) compared to 8 hours working shift of nurses ($41 \pm$

23.6) with $P < 0.000$. Similarly, other studies have found matching results in terms of work-related fatigue, where (77.1%) of respondents have reported adequate recovery between shifts, although prevalence of chronic and persistent fatigue was considerably high (30.3%) [17]. In addition, results from different studies indicate that higher fatigue had negatively affected physical and mental work performances and it has also impacted an increase of medical errors and workers' injuries [18]. Therefore, proper management strategies, duty shifts to minimize work-related fatigue, are among important measures to improve many health problems suffered by nurses [19]. In addition, proper management parameters regarding to duty shift would have an impact in minimizing work-related fatigue in order to improve many health issues encountered at nurses exposed to the high levels of stress [10]. There are also findings which indicate the emotional costs of caring for people who encounter distress, traumatic states, by emphasizing hence the relation between fatigue and job stress, especially in cases of chronic stress as a potential case for burnout [20] [21] [22] [23]. Stathopoulou *et al.* in 2010 [24], have found that female emergency nurses in Greece have reported higher scores of anxiety and higher levels of emotional exhaustion compared to other nurses. In addition, the study indicates that 1/4th of the nurses', exhibit "very severe" depressive mood and sleeping disorders.

Emergency Clinic and Central Intensive Care are known as environments that could be stressful for the health professionals who work there. This was confirmed by the results of the present study. Similarly, findings from other studies have reported that the ED staff ($n = 103$) had experienced stress at work "frequently" or "very frequently", while others (37%) indicated that they've experienced it occasionally. Findings from these studies concluded that 97% of emergency department staff have experienced higher levels of stress and these findings indicated that the emergency care context is stressful [25].

The need to expand the sample, including the older cohort age of nurses working in these Institutions in order to be able to generalize the findings to the entire population of the sample and adequately indicate to the institutional and managerial policies are implied as limitation of the study. Also, in future, in order to accurately measure not just the level of the stress but also other related variables such as: emotional costs, work fatigue, etc, the questionnaire needs to be revised and adopted only for this category of the sample, enabling to specifically measure variables related to the healthcare professionals scope of the work.

5. Conclusions

Workplace stress is a significant problem in healthcare, especially in nursing. Work fatigue, work shift, traumatic events may cause physical and psychological disorders and may indicate towards negative feelings and related to the feelings of being always in charge or on the job, not enough time available to spend with friends, family and as an indicator of minimizing the social interactions and social life.

From the results of the present study related to stress level of nurses working in Emergency Clinic and Central Intensive Care, it can be concluded that:

- The study indicates that moderate to high stress levels were found in both groups of nurses, those working in Emergency Clinic and Central Intensive Care;
- Regarding stress level, significant difference was found in working hours, where nurses working 12-hours' shifts reported higher levels of stress compared to nurses working only 8 hours shifts per day;
- Nurses also reported that there was a significant difference in work fatigue between 12 hours shift compared to 8 hours shift per day.

In conclusion, the initiation of adequate institutional and managerial strategies was recommended as an important means to reorganize the work in a way to alleviate the physical and psychological stressors of the emergency clinic and central intensive care.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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Annex 1

Emergency Nurse Stress Questionnaire

Below is a list of items that describe different aspects of being an emergency nurse. After each item, please circle how much stress it has caused you over the past 6 months, using a 7-point scale (see below) that ranges from “No stress at all” to “A Lot of stress”

	No stress At All			Moderate Stress			A lot of Stress			
	1	2	3	4	5	6	7			
1. Shift Work (does the shift you work because you stress?)				1	2	3	4	5	6	7
2. Risk of being injured on the job										
3. Traumatic events of patients (eg. MVA, death, injury)										
4. Managing your social life outside of work										
5. Not enough time available to spend with friends and family										
6. Finding time to stay in good physical Condition										
7. Fatigue (e.g. shift you work, overtime)										
8. Occupation related health issues (e.g. Back pain)										
9. Lack of understanding from family and friends about your work										
10. Making friends outside the job										
11. Limitations to your social life										
12. Feeling like you are always on the job										

Annex 2

Development of the Police Stress Questionnaires

Researchers:

- 1) Dr. Donald R. McCreary (Principal Investigator)
- 2) Dr. Megan M. Thompson (Co-investigator)
- 3) Wendy Sullivan, MA (Research Assistant)

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- 3) Ontario Police College
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Summary:

The relationship between stress and health (*i.e.*, both physical health and psychological well-being) has received much attention over the years, with researchers demonstrating a consistent association between the two; that is, the more stress people experience, the poorer their physical and mental health. People with higher stress levels report significantly lower overall health and well-being, report the presence of significantly more adverse health symptoms (e.g., increased blood pressure, sleep disturbances), are at greater risk for long-term health problems (e.g., hypertension, coronary artery disease, auto-immune disorders, diabetes), are at greater risk for premature mortality, are more likely to experience symptoms of depression, generalized anxiety, post-traumatic stress disorder, and other psychological ailments (e.g., substance abuse), and they utilize significantly more health care resources (e.g., physicians, hospitals, sick days).

Occupational stress also has a negative effect on employers, something which many people (including the employers themselves) often overlook. Direct costs to employers include reduced productivity, as well as increased absenteeism and employee turnover as a result of issues such as stress-related illness, burnout and low levels of job satisfaction (e.g., Spielberger, Reheiser, Reheiser, & Vagg, 2000). Other costs to employers include health insurance payments to individuals and their families for workplace-related psychological disabilities. A recent study by Sauter (1992) revealed that occupational health insurance payouts total more than five billion dollars annually in the US alone. While these costs tend to be borne by the insurers, as opposed to the employers, they are passed onto the employers and employees through higher insurance premiums.

The association between stress and health is particularly worrisome for those who work in high stress occupations. One of the most highly stressful occupations in North America is policing (e.g., Pendleton, Stotland, Spiers, & Kirsch, 1989). But what are the aspects of policing that are most stressful and what impact do these stressors have on the health and well-being of police officers? This is a complex question, and one that has not been adequately addressed by researchers. While many studies have sought to identify the stressors associated with policing, few have actually tried to link those stressors to officer health and quantify the association.

One reason for this is that there is no commonly used measure of police stress. Thus, the purpose of this research is to develop a short, psychometrically sound measure of the stressors associated with policing, which will then be used in a future program of research investigating the associations among stress, physical health, and psychological well-being.

A three-phase development procedure was followed:

1) Focus Groups: A series of six focus groups were conducted with 55 experienced, active duty officers from the Ontario Provincial Police (OPP). The focus groups helped us identify current and commonly experienced stressors associated with policing. Based on these, we determined that there were two general categories of stressors faced by police officers: Operational Stress and Organizational stress. It was decided to use the most commonly mentioned stressors from the focus groups to create two separate police stress questionnaires: the Operational Police Stress Questionnaire (PSQ-Op) and the Organizational Police Stress Questionnaire (PSQ-Org).

2) Phase 1 (Pilot-testing): The PSQ-Op and the PSQ-Org were given to a group of 47 OPP officers to determine whether there were any problems with the wording of the items or instructions. Participants rated each item for both stress and frequency. In addition, the phase 1 pilot-testing served as an initial assessment of the PSQ-Op's and PSQ-Org's reliability. Based on the responses, the wording of three items was altered slightly, as were the instructions. One item from the PSQ-Org was split into two separate questions. Initial psychometric analyses showed that both the PSQ-Op and PSQ-Org had excellent internal consistency (Cronbach alphas > 0.90) and corrected item-total correlations between 0.30 and 0.60. Finally, stress ratings for the PSQ-Op and PSQ-Org were correlated with their respective frequency ratings ($r = 0.70$).

3) Phase II (Reliability and Validity): This was conducted in two parts. In the first part, 197 active duty police officers from throughout Ontario completed the PSQ-Op (20 items), the PSQ-Org (20 items), the Perceived Stress Scale (Cohen *et al.*, 1983), a short version of the Daily Hassles scale (McCreary & Sadava, 1998), and a measure of negative life events (McCreary & Sadava, 1998). Findings demonstrated that both the PSQ-Op and PSQ-Org were highly reliable (alphas > 0.90; corrected item-total correlations between 0.40 and 0.60) and both were positively correlated ($r = 0.50$ or less) with the other general stress measures. In the second part, a different group of 188 police officers (mostly from Ontario, but with some officers coming from other Canadian provinces) completed the PSQ-Op, the PSQ-Org, the Job Satisfaction Survey (JSS; Spector, 1997), and the Job-related Affective Well-being Scale (JAWS; Van Katwyn *et al.*, 2000). The results again showed that the two PSQ scales were highly reliable (alphas > 0.90; corrected item-total correlations between 0.40 and 0.60). In addition, the PSQ-Op and PSQ-Org scores were negatively correlated with self-ratings from the JSS (-0.19 to -0.56) and the positive work-related emotions subscale from the JAWS (-0.20 to -0.25), but were positively correlated with scores from the negative work-related emotions subscale from the JAWS (0.27 to 0.34).

UPDATE: As of the current update of this page, the **Operational Police Stress Questionnaire (PSQ-Op)** and the **Organizational Police Stress Questionnaire (PSQ-Org)** are available for use by researchers interested in exploring police stress. The PSQ-Op and PSQ-Org are both 20-items each and can be used

either separately or together. The short length of each PSQ helps to reduce the burden placed on officers completing them and allows researchers greater flexibility (in terms of focussing on either operational or organizational stress, if they so desire). Each PSQ is scored by summing or averaging the 20 items from each to create separate PSQ-OP and PSQ-Org scale scores.

The PSQ-Op and PSQ-Org have been adopted by researchers world-wide. They also have been translated into numerous other languages.

The **PSQ-Op** and **PSQ-Org** can be downloaded from this web page in PDF format or you can contact **Dr. Don McCreary** (NOTE: this e-mail link takes you to Don's work e-mail address) for either an electronic copy (in MS Word) or a hard copy version. Please note that the PSQ-OP and PSQ-Org can be used freely for academic research, as well as by police departments. For all other purposes, contact Dr. McCreary.

When citing or referencing the PSQ scales in your publications or presentations, please use the reference citation at the top of this page.