

Occupational stress in nursing – review of studies in chosen hospital wards of Eastern Poland

(Stres zawodowy pielęgniarek - badania w wybranych oddziałach szpitalnych Polski wschodniej)

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Abstract – Introduction. Stress is considered one of the main factors which negatively affect the workplace. In recent times, special focus has been given to healthcare workers, especially nurses. The aim of the research was to assess occupational stress levels and means of dealing with them by nurses working in internal diseases departments and intensive care units in Eastern Poland.

Data and methods. The survey was carried out on the group of 90 nurses. Research tools included an authorial study designed for the purpose of the work and Subjective Work Assessment Questionnaire.

Results. The levels of stress in the surveyed group amounted to 6-9 sten score which is considered as high. The strongest stress-inducing factors in the nursing profession include job complexity, lack of rewards, sense of insecurity caused by work organisation, sense of danger, and social relations. It was stated that the workplace and hospital wards profile where nurses work do not have any effect on the occupational stress levels.

Conclusion. Stress levels among nurses working in the internal diseases departments and intensive care units are high. It is necessary to organise and promote education-oriented anti-stress campaigns aiming to boost the skills of overcoming hardships in the nursing profession.

Key words - stress, health care, nurses, professional burnout syndrome.

Streszczenie – Wstęp. Stres uważany jest za jeden z głównych determinantów wpływających destruktywnie na środowisko pracy. Szczególnym zainteresowaniem ostatnimi czasy opatrzone pracowników służby zdrowia, zwłaszcza pielęgniarki. Celem badań była ocena stresu zawodowego i sposobów radzenia sobie przez pielęgniarki pracujące na oddziale wewnętrznym i OIOM-ie szpitali Polski wschodniej.

Materiał i metody. Badania przeprowadzono na grupie 90 pielęgniarek. Narzędzia badawcze stanowiła autorska ankieta stworzona na potrzeby pracy oraz Kwestionariusz Subiektywnej Oceny Pracy

Wyniki. Wartości stresu w badanej grupie mieściły się w przedziale 6-9 stena, co uważa się za wysoki poziom. Najbardziej stresogennymi czynnikami w zawodzie pielęgniarki są złożoność pracy, braku nagród w pracy, poczucie niepewności wywołane organizacją pracy, poczucie zagrożenia i kontakty społeczne. Stwierdzono, że miejsce pracy i specyfika oddziału, na którym pracują pielęgniarki nie mają wpływu na poziom stresu zawodowego.

Wnioski. Stres odczuwany przez pielęgniarki pracujące zarówno na oddziale wewnętrznym, jak i OIOM-ie jest wysoki. Istnieje potrzeba realizowania antystresowych programów promocyjnych nastawionych na wykształcenie i wzmocnienie umiejętności radzenia sobie w sytuacjach trudnych przez personel pielęgniarski.

Słowa kluczowe - stres, ochrona zdrowia, personel pielęgniarski, syndrom wypalenia zawodowego.

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- A. The idea and the planning of the study
- B. Gathering and listing data
- C. The data analysis and interpretation
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I. INTRODUCTION

Nursing is the foundation of health protection and unparalleled force in the ever-growing demand for health care. It makes up an occupational group whose duties entail mental and physical burdens. Dealing with death on a daily basis, helplessness towards diseases and human suffering, as well as insufficient group cooperation are merely a few of the problems that nurses have to face in the workplace. "A nurse's job in Poland is additionally difficult because its occupational prestige is low, chances for development and promotion in the profession are small, and the salary is low". Stress induced by these factors leads to high dissatisfaction among workers and their diseases, absence from work, lower productivity and poorer quality of the services provided to patients [1-4].

The aim of the research was to identify stress-inducing factors affecting nurses working in selected hospital wards and their effects on this occupational group. Following questions served as a more in-depth explanation of the set objective:

1. Is there a relationship between the ward profile where a nurse works and level of stress exposure?
2. Is there a relationship between the age of a nurse and occupational stress?
3. Do professional qualifications and work experience in the nursing profession have influence on stress levels at work?
4. Which traits of the nursing profession are thought to be the most stress inducing?

II. MATERIALS AND METHODS

The research was conducted on the group of 90 nurses working in the intensive care unit (n=45) and the internal diseases department (n=45) of the hospitals situated in Eastern Poland. The respondents were informed about the essence of the study and its anonymous character. They were also asked to provide sincere and well-thought answers. The study group consisted only of women (n=90, 100%) representing following age groups: up to 25 years old – 6.67% (n=6), 26-30 years old – 15.56% (n=14), 31-35 years old – 20% (n=18), 36-40 years old – 13.33% (n=12), 41 years old and older – 44.44% (n=40). A significant number of the respondents were married (72.22%, n=65). 34.44% (n=31) of the surveyed came from the coun-

tryside and 65.56% (n=59) came from the city. The group was also asked to assess their own living and housing conditions. They were mostly rated as good (76.67%, n=69). A significant minority stated their living and housing conditions were very good (21.11%, n=19), and bad (2.22%, n=2). However, as many as 81.11% (n=73) of the surveyed admitted that the salary is not high enough for their needs. 32.22% (n=29) of the surveyed graduated from medical studies, 24.44% (n=22) graduated from medical high school, 20% (n=18) graduated from university with a bachelor's degree and 23.34% (n=21) of the surveyed graduated from university with a Master of Science degree. Nurses with twenty-one and more years' work experience (38.89%, n=35) formed the largest group. Groups of nurses with shorter work experience were smaller: 20% (n=18) had 5 years' work experience, 17.78% (n=16) had 11-15 years of work experience, 13.33% (n=12) had 6-10 years of work experience and 10% (n=9) of the surveyed had 16-20 years of work experience.

The study was conducted with the use of a diagnostic poll method, a survey technique. The authorial questionnaire served as a research tool. The questionnaire contained an attachment with questions regarding socio-demographic factors. The questionnaire included questions regarding e.g. levels of stress exposure, opportunities for developing professional qualifications, completed professional development courses. The questions were both closed-ended and half-open, and the surveyed could provide usually only one answer per question. Subjective Work Assessment Questionnaire created by Dudek and co-workers intended for individual assessment of stress levels in a given profession was used. The tool consists of 50 statements describing various work traits complemented with 5-level Likert scale describing the level at which a certain trait is burdensome, irritating, or stressful. The following stress-inducing factors were highlighted in the questionnaire: the feeling of mental burden related to job complexity, lack of rewards at work, sense of insecurity caused by work organisation, social relations, sense of danger, physical ailments, unpleasant work conditions, lack of control, lack of support, and a feeling of responsibility [5].

The analysis of the gathered data was done using STATISTICA 10 statistical software and Microsoft Office Excel. Mann-Whitney U test was used to compare two independent groups and Kruskal-Wallis test was used for comparison of more than two groups. χ^2 homogeneity test was used for unrelated qualitative features in order to detect differences between compared groups and to study reliance that occurs among the examined traits. The assumed value of statistical significance was $p < 0.05$, which signalizes occurrences of statistically significant differences

or dependences. It is also crucial to show ways of estimating stress intensity based on the Subjective Work Assessment Questionnaire. It starts by adding up all the points a given person scored in the whole questionnaire. Then the raw score is transferred into the sten score with the use of the chart attached to the tool. Sten standards of the Subjective Work Assessment Questionnaire's overall results are as follows:

- a) 1-4 low level, where a raw score amounts to 65-80, b) 5-6 medium level with a raw score amounting to 81-101, and
- c) 7-10 high level, with the raw score 102 and higher [5].

III. RESULTS

Based on the data, more than a half of the surveyed (57.78%, n=52) experienced stressful situations in their personal lives. 38.89% (n=35) stated that they experienced very few stressful situations in their everyday lives. Only 3.33% (n=3) said they did not experience any stress in their lives off work. The respondents enumerated following stress-inducing factors in the workplace: understaffing (68.89%), team atmosphere (47.78%), number of patients and their condition (43.33%), flow of information between nurses and the rest of medical staff (42.22%), increasing demands (38.89%), motivation to work (26.67%), working hours (20%), and communication among team members (20%). The respondents were asked to answer the following question: "Are there any meetings in the ward focused on dealing with stressful situations?". It turns out that 66.67% (n=60) of the surveyed does not have the possibility of taking part in meetings that would tackle such issues.

The surveyed assessed supervisors' approach towards the nursing staff developing professional qualifications. 54.44% (n=49) said that their supervisors generally encouraged them and facilitated developing professional qualifications. The surveyed completed following professional development courses: specialised courses (41.11%, n=37), including cardiopulmonary resuscitation (CPR) and wound dressing, vaccinations and blood donation; qualifying courses (22.22%, n=20), including a nurse anaesthetist course, family-environmental nurse course, long-term care course, preservative course, surgical course, paediatric course, intensive care course, organisation and management course; specialisations (23.33%, n=21) in preservative nursing, anaesthetic nursing, intensive care, gynecological, obstetric, surgical, and long-term care. Respondents who did not complete any additional professional development courses felt stress-inducing factors more intensively than the rest of the surveyed (p=0.02) (Table 1).

Table 1. Intensity of stress-inducing factors' and completed courses in professional development

Completed courses in professional development	M	SD	Me
Yes	2.96	1.34	3.00
No	3.84	1.85	4.00
Statistical analysis: Z=2,27, p=0,02.			
M – average, SD – standard deviation, Me – median, Z- Mann-Whitney's U test results, p - statistical significance			

Based on the analysis of results of the Subjective Work Assessment Questionnaire, the median general stress indicator among the surveyed nurses amounted to 124.76 ± 27.56. Values amounted to 6-9 sten, which is a high score. The most important factors inducing stress in the workplace included: job complexity, lack of rewards, sense of insecurity caused by work organisation, a sense of danger, and social relations (Tablet 2).

Table 2. Arduousness of stress factors based on the Subjective Work Assessment Questionnaire

Stressors	M	SD	Me
Job complexity	20.51	20.00	5.80
Lack of rewards at work	19.40	19.50	6.18
Sense of insecurity caused by work organisation	17.62	17.50	4.86
Sense of danger	13.47	13.00	3.44
Social relations	10.02	9.00	2.40
Feeling of responsibility	9.99	10.00	2.85
Lack of control	8.36	8.00	2.02
Physical ailments	7.98	8.00	3.58
Unpleasant working conditions	5.81	5.00	3.02
Lack of support	5.42	5.00	2.07
M – average, SD – standard deviation, Me – median			

Data analysis points out that the general stress indicator was higher for nurses working in the intensive care unit (7-9 sten score) and lower for the nurses working in the internal diseases department (6-9 sten score). Despite small differences the results in both groups are high and statistically indistinguishable ($p=0.74$).

The statistical analysis showed differences between the respective age groups and the general stress indicator ($p=0.02$), as well as stress-inducing factors, such as lack of rewards at work ($p=0.008$), sense of danger ($p=0.008$), lack of control ($p=0.01$), job complexity ($p=0.05$), and physical ailments ($p=0.05$). No statistically significant differences were noticed among other stress-inducing factors. Enumerated factors were most intense in two age groups: up to 30 years old and 31-40 years old. In all groups the sten score amounted to 8-9, which means the stress intensity was high (Table 3).

Table 3. Subjective Work Assessment Questionnaire's results with the consideration for age

Stressors	Up to 30 years old		31-40 years old		41 years old and older		Statistical analysis	
	M	SD	M	SD	M	SD	H	p
	General stress indicator (sten)	8.30	1.59	8.13	1.61	7.03	2.07	7.83
Job complexity	20.75	5.50	22.43	5.58	18.95	5.79	6.01	0.05
Lack of rewards at work	21.20	6.02	21.27	5.66	17.10	5.99	9.59	0.008
Sense of danger	15.00	2.73	13.83	3.44	12.43	3.49	9.69	0.008
Physical ailments	8.05	3.32	9.17	3.81	7.05	3.34	6.08	0.05
Lack of control	9.15	1.98	8.47	1.83	7.88	2.09	9.24	0.01

M – average, SD – standard deviation, H - Kruskal-Wallis test results, p - statistical significance

There was a significant correspondence between education of nurses and stress-inducing factors, such as lack of rewards at work ($p=0.03$), social relations ($p=0.03$), and lack of support ($p=0.008$). The conclusion was that the higher the education, the higher stress level in the workplace. The factors mentioned above had a stronger effect on the group of university graduates with Master of Science degree and a weaker one on the group of medical studies and medical high school graduates. No significant differences were observed between other stress-inducing factors (Table 4).

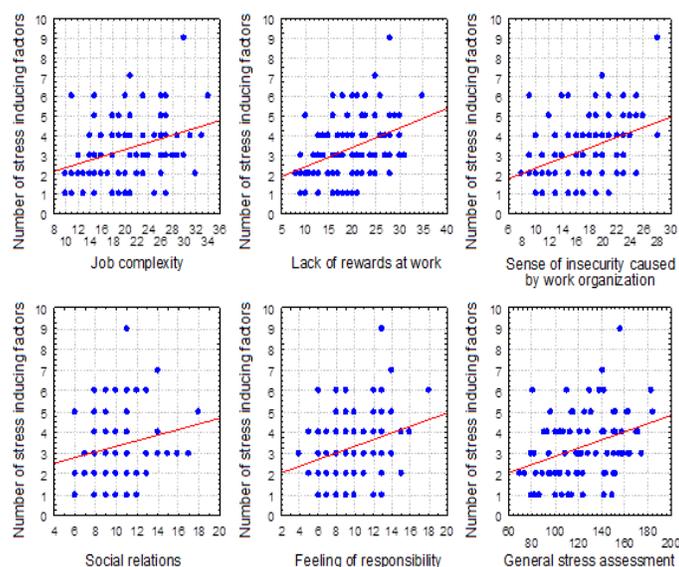
Table 4. Subjective Work Assessment Questionnaire's results with the consideration for education

Stressors	Medical high school		Medical study		University (Bachelor's degree)		University (Master of Science degree)		Statistical analysis	
	M	SD	M	SD	M	SD	M	SD	H	p
	Lack of rewards at work	16.64	6.82	18.93	5.90	21.89	4.87	20.81	5.97	9.23
Social relations	8.82	1.56	10.28	2.64	10.33	2.77	10.67	2.15	9.31	0.03
Lack of support	4.73	1.91	5.69	2.00	6.61	2.03	4.76	1.92	11.80	0.008

M – average, SD – standard deviation, H - Kruskal-Wallis test results, p - statistical significance

The statistical analysis showed positive correlations between the number of factors generating occupational stress and general stress indicator ($R=0.34$, $p=0.001$), as well as stress inducing factors, such as job complexity ($R=0.33$, $p=0.001$), lack of rewards at work ($R=0.36$, $p=0.0005$), feeling of insecurity caused by work organisation ($R=0,38$, $p=0,0002$), social relations ($R=0,23$, $p=0,03$), and the feeling of responsibility ($R=0,26$, $p=0,01$). In pair with the increase of stress-inducing factors rises the intensity of occupational stress (Figure 1).

Figure1. Correlation between the selected results from the Subjective Work Assessment Questionnaire and the number of factors contributing to stress spike in the nursing profession



IV. DISCUSSION

The conducted research proves that nurses experience intensive stress load in the workplace. Stress experienced by the surveyed amounted to 6-9 sten score. The analysis of the author's own research results showed lack of significant differences in intensification of stress-inducing factors between nurses working in the intensive care unit and those working in the internal diseases department. However, gave grounds for a conclusion that stress levels were high in both cases. The results obtained partially correlate with findings from other studies, where nurses defined their workplace as stress inducing. Tartas and co-workers compared occupational stress intensity among nurses working in a hospice and in a general surgery ward. They observed no significant differences in stress intensity between both groups ($p=39$). Despite that, the surveyed nurses defined stress at work as high (hospice – 57%, surgery – 70%) [6]. Iked and co-workers have agreed that this is a real and serious issue. They claim that a lot of private practices will be established with a view to focusing on assessing stress levels in the workplace and on protection of medical staff's mental well-being. According to the study, occupational stress was not assessed altogether in case of 40% of the surveyed. The researchers claim that it is crucial to assure protection of the worker's mental well-being and to reduce stress in the workplace by organising training courses which would contribute to development of cooperation with supervisors and co-workers, as well as to gaining experience in dealing with difficult situations and boosting self-confidence [7]. It is also necessary to take a glance at Patterson's findings which suggest that stress and anxiety is a common issue among nursing students. The study suggests that the stress experienced by nursing students is bigger than that experienced by medical students, public health students, and students of majors unrelated to health care. The author claims that Emotional Freedom Techniques (EFT) are very useful in reducing stress. Nursing students who had been using them experienced lesser stress, fewer stress accompanying somatic symptoms [8], and weaker anxiety.

Gugała conducted a research among nurses working in the cardiology ward. The surveyed claimed that their workplace was full of stress. They enumerated main stress inducing factors: low salary (90%), responsibility for another person's life (77%), night shifts (72%), rush (71%), or understaffing (70%) [9]. The nurses surveyed in Tartas and co-workers' study listed following factors to be the most stressful: general workload, ward equipping and its management, salaries, relations with patients, witnessing poor health conditions and participating in gradual termination of patients. The authors state that all these stem from hospi-

tals' economic hardships, as well as a huge financial discrepancy that is developing between the private market of medical services and public health care [6]. In the author's own research results the surveyed provided similar answers. They enumerated the following stress-inducing factors as the most significant ones: understaffing, team atmosphere, number of patients and their condition, flow of information between nurses and the rest of medical staff, increasing demands, motivation to work, working hours, and communication between team members.

Koinis and co-workers carried out research with the aim to study the influence of the environment on medical staff's health and to analyse the strategy of dealing with difficult situations. The authors claim that stress in the workplace can have negative effects on medical staff's mental and physical well-being and can lead to deterioration of their lives' quality. Authors claim that the lack of meetings that would focus on presenting the strategies of dealing with stress is the main source of problems. The surveyed nurses claim that this is the result of the lack of interest in workers' emotional state shown by the management. Providing social support, rewarding workers and enabling them to develop are the main factors that contribute to stress reduction at work [10]. Ramuszewicz and co-workers found out that over 60% of the surveyed nurses never participated in any meetings that would focus on dealing with stress [11]. In the author's own research it was proven that meetings focusing on dealing with stress in the workplace are arranged rarely. 66.67% ($n=60$) of the surveyed nurses never had a chance to participate in any meetings that would focus on dealing with hardships in the workplace.

Unquestionably, work exerts influence on workers' personal lives and occupational conflicts can translate into problems at home. Kózka and co-workers found out that 86.7% of the respondents declared that their job had an impact on their family lives. In the case of 34.5% of the surveyed stress was the main cause of marital conflicts and prevented workers from successfully performing their both professional and family duties (mostly due to shift work and fatigue) [12]. In the author's own research similar phenomena were observed, as 57.78%, ($n=52$) of the surveyed experienced a lot of stressful situations in their personal lives. Only 3.33% ($n=3$) of the respondents claimed that their personal lives were stress-free.

Ko and Kiser-Larson focused on stress-inducing factors and dealing with stress by nurses working in oncological wards. The authors claim that many nurses, especially beginners, are insufficiently prepared for taking care of severely ill patients. The process of termination and death itself were deemed as the most stress-inducing factors for the nurses. Demographic variables, as well as age and pro-

professional experience had significant impact on dealing with stress. Young nurses with smaller professional experience are more prone to stress-inducing factors and occupational burnout than older and more experienced nurses [13]. In the author's own research it was stated that there is a correlation between the age of the surveyed and intensification of occupational stress. Nurses from the age group up to 40 years old were more prone to stressors (8 sten score) than nurses from age group 41 years old and older (7 sten score).

People spend most of the time of their lives at work, hence the atmosphere in the workplace has a big impact on an individual's health and efficiency. Shin and Lee tried to identify sources of stress depending on the workplace, and they studied the role of friendship in Korean medical staff's stress development. The least intensive stress was experienced by radiologists (45.4), then nurses (52.4) whereas the most intensive one was experienced by doctors (53.6). Workers with long-term friendships experienced less stress than workers with weak social relationships. According to the surveyed, support and friendships are the most significant factors that help to control stress at work [14]. In the author's own research, the team atmosphere (47.78%), flow of information between nurses and the rest of the medical staff (42.22%), and communication between team members (20%) comprised the most stress-inducing factors. Interpersonal relations at work have a very big impact on the occurrence of stress in the workplace.

The main problem of this profession lies in the fact that despite professional preparation nurses often have the sense of lack of autonomy and they are often underestimated. Their occupation is often a breeding ground for conflicts, frustration and long-term emotional turmoil that often leads to professional burnout [15]. Trbojević-Stanković and co-workers studied professional burnout syndrome among Serbian nurses. Almost half of the nurses (42.9%) experience professional burnout. High levels of emotional exhaustion (40.9%), depersonalisation (8.6%) and low level of self-fulfilment (31.3%) were observed. Despite that the surveyed preserved a high level of empathy [16].

V. CONCLUSION

Stress is perceived as one of the most common hazards occurring in the workplace. A nurse taking care of patients is constantly in the state of psychophysical tension. Numerous studies prove that stress is inseparably connected with the nursing profession, whereas factors that escalate it vary extensively.

1. Stress experienced by nurses working in both internal diseases and intensive care departments is high. It amounts to 6-9 sten score.
2. According to the nurses, the most stress-inducing factors of their work include: job complexity, lack of rewards, a sense of insecurity caused by work organisation, a sense of danger, and social relations.
3. Worksite and ward profile, where nurses work have no effect on the occupational stress they experience.
4. There is demand for anti-stress promotional campaigns and trainings aimed at educating and boosting nurses' skills of dealing with stress.

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