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Strategies for Coping with Stress among Medical Staff who Work in the Operating Theatre

Strategie radzenia sobie ze stresem wśród personelu medycznego na sali operacyjnej

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Abstract

Introduction. Stress is a constant presence in the work of health care professionals who come into contact with sick and suffering people every day. Medical personnel must possess both professional knowledge, skills, and social competence to best help patients. Coping strategies for stress among medical professionals can vary. One factor that may influence the strategies chosen is personality. Type D personality combines traits of negative emotionality and social inhibition. This personality type predisposes to experiencing increased levels of stress.
Aim. The purpose of this study was to determine the level of stress and coping strategies among operating theatre staff.
Material and Methods. 100 operating theater employees were surveyed. The study group consisted of nurses/nurses, paramedics, doctors. Questionnaires were used in the study: Perceived Stress Scale (PSS-10), Inventory for the Measurement of Coping with Stress (Mini-COPE), Type D Scale (DS-14) and self-administered questionnaire.
Results. Almost half of the subjects (47%) reported high levels of stress and 35 subjects (35%) reported medium levels of stress. The most common coping strategies used to manage stress were active coping, planning, positive reevaluation, acceptance and seeking emotional support. 41% of the respondents demonstrated a Type D personality. Negative emotionality was more strongly indicated than social inhibition.
Conclusions. The highest levels of stress are mainly experienced by young women, not in a relationship, with short work experience. Systemic psychological support should be introduced, especially targeted at this group. Due to the shortage of medical staff, measures to prevent professional burnout should also be implemented. A possible solution could be classes or trainings before starting work. Their aim would be to prepare for stressful moments in future work and to teach the most effective ways of coping with stress. **(JNNN 2022;11(2):59–64)**
Key Words: coping strategies, stress, type D personality

Streszczenie

Wstęp. Stres jest nieustanie obecny w pracy pracowników ochrony zdrowia, którzy każdego dnia mają kontakt z ludźmi chorymi i cierpiącymi. Personel medyczny musi posiadać zarówno fachową wiedzę, umiejętności jak i kompetencje społeczne, aby jak najlepiej pomagać pacjentom. Różne mogą być strategie radzenia sobie ze stresem wśród pracowników medycznych. Jednym z czynników, który może mieć wpływ na wybierane strategie jest osobowość. Osobowość typu D łączy cechy negatywnej emocjonalności i hamowania społecznego. Ten typ osobowości predysponuje do odczuwania zwiększonego nasilenia stresu.
Cel. Celem pracy było określenie poziomu stresu oraz strategii radzenia sobie ze stresem wśród pracowników bloku operacyjnego.
Materiał i metody. Przebadano 100 pracowników bloku operacyjnego. Badaną grupą stanowili pielęgniarki/pielęgniarze, ratownicy medyczni, lekarze. W badaniach wykorzystano kwestionariusze: Skalę Odczuwanego Stresu (PSS-10), Inwentarz do Pomiaru Radzenia Sobie ze Stresem (Mini-COPE), Skalę do pomiaru typu D (DS-14) oraz ankietę własną.

Wyniki. Niemal połowa badanych (47%) wykazuje wysoki poziom stresu a u 35 badanych (35%) stwierdzono średni poziom stresu. Najczęściej stosowanymi strategiami radzenia sobie ze stresem były: aktywne radzenie sobie, planowanie, pozytywne przewartościowanie, akceptacja i poszukiwanie wsparcia emocjonalnego. 41% respondentów wykazało osobowość typu D. Negatywna emocjonalność była mocniej zaznaczona niż hamowanie społeczne.
Wnioski. Najwyższy poziom stresu odczuwają głównie młode kobiety, nie będące w związku, o krótkim stażu pracy. Należałoby wprowadzić systemowe wsparcie psychologiczne szczególnie ukierunkowane na tę grupę. Z uwagi na niedobory kadrowe pracowników medycznych należy również wdrożyć działania zapobiegające wypaleniu zawodowemu. Możliwym rozwiązaniem mogłyby być zajęcia czy szkolenia jeszcze przed podjęciem pracy. Ich celem byłoby przygotowanie do stresujących momentów w przyszłej pracy i nauczenie najefektywniejszych sposobów radzenia sobie ze stresem.
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Słowa kluczowe: strategie radzenia sobie ze stresem, stres, osobowość typ D

Introduction

Occupational stress is experienced by many professional groups, but medical personnel are particularly exposed to this type of stress. Every day they come into contact with sick and suffering people, often with patients who are fighting for their lives. In the work of medical personnel, professional knowledge (supplemented with the latest scientific discoveries), skills (also constantly improved through courses and training) and social competence are extremely important. It is the medical personnel who pass on both good and bad information to the patients and their families. They are with the patients in very difficult moments. These professions involve great responsibility for the health and life of the patient, and decisions about medical treatment sometimes have to be made immediately when there is a threat to the patient's life. It is not surprising, therefore, to see increased levels of stress in this group.

In general, among the categories of work-related stressors for different occupations, one can distinguish:

1. Job content — work overload/underload, complex work/monotonous work, too much responsibility, dangerous work, conflicting/uncertain demands.
2. Working conditions — toxic substances, poor conditions (noise, vibration, lighting, radiation, temperature), position in which work is performed, physically demanding work, hazardous situations, lack of hygiene/lack of protective equipment.
3. Employment conditions — shift work, low pay, little opportunity for career advancement, no permanent contract, job insecurity.
4. Social relations at work — poor leadership, little social support, little participation in decision making, restriction of freedoms, discrimination [1].

Stress can be triggered by an incidental event, causing temporary discomfort, followed by a decrease in tension. Stress can also last longer — weeks or months. While the first type of stress leaves no lasting negative health effects, chronic stress has a major impact on health. Fatigue occurs first, and then psychosomatic illnesses or mental disorders can develop [2]. Since there is a link between stressful work environment and job burnout, chronically stressed people are also more likely to experience job burnout. "Occupational burnout is also most often analyzed from the perspective of burnout subjects. This focus on the subject of burnout takes the discussion away from the context of the employer's responsibility in this area and the most common reaction to burnout is to attribute responsibility solely to the individual (…) It is worth emphasizing that real-life workplaces are rarely exclusively supportive or stressful. However, it is about some balance between stress and support factors in a given organizational environment" [3].

Among the possible effects of occupational stress, there are two groups of effects subjective and organizational. Subjective effects include: physical symptoms (e.g., fatigue, apathy, difficulty speaking); decreased quality of work (e.g., loss of motivation, loss of control over work, forgetfulness); withdrawal (e.g., tardiness, avoidance of contact, resignation); changes in behavior/appearance (e.g. regression (e.g., crying fits, arguments, immature behavior); aggressive behavior (e.g., malicious rumors, yelling).

Whereas organizational ones are: inadequate use of working time, decrease in productivity and quality of work, high sick leave rate, high employee turnover, increased risk of accidents, absenteeism, resistance to change, mobbing, strike, conflict [4].

It is, therefore, extremely important to manage daily stress and work stress effectively so that it does not lead to serious consequences.

Three styles of coping with stress are reported (developed by Endler and Parker):

1. Task-focused style — means taking on tasks to solve a problem.
2. Emotion-focused style — this is turning towards one's own experiences and emotions in order to reduce emotional tension).
3. Avoidance-focused style — is to stop thinking about the problem, focus on other activities) [5].

The purpose of this study was to examine the stress levels of operating room staff and coping strategies.

Material and Methods

From December 2020 to January 2021, 100 employees of the operating theater of the Wrocław hospital were surveyed. The study group included: nurses, paramedics, physicians divided by specialty into: anesthesiology and instrumentation/surgery. Anesthesiology nurses were the most numerous group.

Questionnaires were used in the study:

a. PSS-10 — by S. Cohen, T. Kamarck and R. Mermelstein adapted by Z. Juczyński and N. Ogińska-Bulik. The questionnaire is used to measure perceived stress.
b. Mini-COPE questionnaire by Ch. Carver adapted by Z. Juczyński and N. Ogińska-Bulik. The tool is used to examine the ways of reacting and feeling in the situation of strong stress.
c. DS-14 — by: N. Ogińska-Bulik and Z. Juczyński and J. Denellet. It is a tool that determines the tendency to experience negative emotions and the tendency to inhibit oneself in expressing these emotions and related behaviors.

Statistical Methods Used

To analyze the quantitative variables (i.e., expressed by number), the mean, standard deviation, median, and quartiles were calculated. The analysis of qualitative variables (i.e., not expressed by number) was performed by calculating the number and percentage of occurrences of each value. Comparison of the values of quantitative variables in two groups was performed using the Mann–Whitney test. Comparison of the values of quantitative variables in three and more groups was performed using the Kruskal–Wallis test. When statistically significant differences were detected, post-hoc analysis was performed with Dunn's test to determine the groups whose difference was statistically significant. Correlations between quantitative variables were calculated using Spearman correlation coefficient. A significance level of 0.05 was assumed.

Results

Study Group

One hundred subjects, 75 females and 25 males, ranging in age from 22 to 60 years (mean age was 39.56) were studied. Most subjects (19%) were between the ages of 26–30, and between the ages of 46–50 (19%). 44% of the respondents were married. 53% of respondents have children. The vast majority (87%) live in the city.

As far as the profession is concerned, in the surveyed group the majority are nurses (68%), followed by physicians (27%) and paramedics (5%). 61% of respondents declared higher education, 15% had secondary education and 24% had specialization. The specialty of 74% of the respondents was anesthesiology and 24% surgery/instrumentation. For 41 percent of the respondents work experience was more than 20 years and as many as 34% of the respondents have been working from 0–5 years. So, in the study group, most people either had a lot of experience or were just beginning to gain experience. For almost half of the respondents (48%) this was their only job, and 37% declared two jobs. For more than half of the respondents the monthly working hours were 151–200 hours. Only 9 people worked fewer hours. The others worked more than 201 hours per month (one person did not give an answer). The remuneration from the work performed was satisfactory only for 34% of the respondents. When asked about time spent on passions and interests, 68% of respondents said they had that time. As a preferred form of relaxation 76% indicated active spending of time.

The PSS10 questionnaire is an instrument that examines the subjective assessment of stress severity. High levels of stress were observed among 47 subjects (47%), 35 subjects (35%) had medium levels of stress. Only 18% of the subjects had low levels of stress.

The Mini COPE questionnaire is used to assess coping strategies for stress. In the study group, the frequently used coping strategies were: active coping, planning, positive reevaluation, acceptance and seeking emotional support (mean about 2). Less frequently used strategies were: seeking instrumental support, preoccupation with something else, unloading and blaming oneself (mean about 1.5). Rarely used strategies included: humor, turning to religion, and cessation were used infrequently (mean about 1). Denial and substance abuse strategies were rarely and almost never used (mean about 0.5).

The DS14 questionnaire targets the presence of Type D personality. Two dimensions are assessed: negative emotionality and social inhibition. In the study group, negative emotionality was more strongly marked (mean score of 12.01) than social inhibition (mean score of 10.47). Forty-one percent of the subjects exhibited Type D personality traits.

Sociodemographic Variables and Levels of Stress Experienced by Operating Theatre Medical Staff

A statistically significant relationship was observed between gender and level of perceived stress ($p<0.05$) (Table 1). The level of stress was significantly higher in

Table 1. The relationship between stress levels and sex

PSS-10 [points]	Sex		p
	Female (N=75)	Male (N=25)	
Mean±SD	19.73±5.72	16.84±6.83	p=0.025
Median	20	16	
Quartiles	16–23.5	14–19	

p — test Manna–Whitney'a

females than in males and in maids and bachelors than in married, divorced and widowed (p<0.05) and childless subjects. The level of perceived stress is significantly lower in the discussed group with the age of the subjects.

The place of residence does not significantly influence the level of perceived stress, nor does the occupation or education performed in a given group. There were also no correlations between the level of stress and the specialty of the respondents, the number of places where they are employed or between the monthly working hours. Also, monthly income did not significantly influence the level of perceived stress.

On the other hand, a correlation was observed between job seniority and stress level. Shorter job tenure correlates significantly with higher stress levels (Table 2).

Table 2. The relationship between stress levels and job tenure

PSS-10 [points]	Job tenure				p
	0–5 years (N=34) — A	6–10 years (N=7) — B	11–20 years (N=18) — C	>20 years (N=41) — D	
Mean±SD	22.44±6.28	18.57±2.82	17.22±4.8	17.02±5.78	p<0.001
Median	23.5	19	17.5	18	
Quartiles	19.25–26	16.5–20	15.25–20	13–21	A>C,D

p — test Kruskala–Wallisa+analysis post-hoc (test Dunna)

Contrary to what one might think, no relationship was observed between stress intensity and having time for hobbies or preferred form of relaxation.

Coping Strategies for Stress among Operating Theatre Staff with Sociodemographic Variables

Women significantly more often chose — acceptance, seeking emotional support and seeking instrumental support as coping strategies. Men, on the other hand, indicated a sense of humor significantly more often.

A negative correlation was also found between age and strategy choice: preoccupation, discharge, psychoactive substance use, cessation, and self blame. Psychoactive substance use was more prevalent in the bachelorette group than in the married group and in the group without children.

According to the study, occupation also influences the choice of coping strategies for stress. Planning is more often used by physicians than by paramedics, while turning to religion was significantly more often used by nurses than by physicians and paramedics. The denial strategy was used more often by nurses than by physicians.

Those with a master's degree or doctorate were more likely to use humor than respondents with a high school education. Respondents with a high school education or a bachelor's degree were more likely to use denial than professionals.

It was observed that the strategy of preoccupation with something else was more frequently used by those with shorter tenure both in the 0–5 and 6–10 group than those working 11–20 years. Similarly, the strategy of offloading was significantly more prevalent in those with 0–5 years of seniority compared to those with longer seniority of 11–20 and more than 20 years. Those with shorter tenure of 0–5 and 6–10 years were more likely to resort to substance abuse and blaming themselves than those with more than 20 years of tenure. Preoccupation with something else was a significantly more frequently used strategy for those working in one location than by those working in two or more locations.

A positive correlation was observed between the monthly work dimension and the frequency of use of active coping and planning strategies, and a negative correlation between the monthly work dimension and the frequency of use of the turn to religion strategy. Monthly income correlated with the occurrence of the strategy turn to religion, which was significantly more frequently used in the group with average income than in the group with satisfactory income. Discontinuation was significantly more frequent in the group with insufficient income than in the group with satisfactory income. No associations were found between the choice of coping strategies and place of residence, specialty, having time for hobbies, or preferred form of relaxation.

When examining the relationship between Type D personality and PSS-10 and Mini COPE, it was found that stress levels were significantly higher among subjects with Type D personality. Respondents with Type D personality were significantly more likely to choose discharge, substance abuse, cessation of activities, and blaming themselves as coping strategies.

Discussion

Stress can be viewed in two ways — as a motivating factor for action, but also as the cause of many psychosomatic diseases [6]. Stimuli that have been attributed with stressful effects include extreme temperatures, vibrations, noise, weightlessness, inhalation or ingestion of toxic substances, use of stimulants (nicotine, coffee, alcohol) or intense physical exertion. However, the level of stimulation occurring by these stimuli individual. Based on the results of the study by Gładysz et al. it was found that shift work of nurses influences irregular nutrition and increased consumption of strong coffee and tea [7].

According to Magdalena Kwak and co. nurses are constantly exposed to stress related to the specifics of their work. In every department they are close to a sick person and his ailments. They are often faced with life-threatening situations and the need to make quick decisions. However, such factors as co-workers, family, environment, working conditions, mutual interactions and high responsibility can also be stressful for medical staff. The disproportion between the employee's effort and salary is also noted [8].

According to the results of Kwak's study, nurses in stressful situations most often choose models of active coping and support-seeking [8]. According to the study by Ogińska-Bulik, among paramedics who experienced severe stress (trauma) the most common strategies were active coping and planning. A positive correlation was also observed between the severity of stress and turning to religion, seeking support (emotional and instrumental), and diverting attention by attending to something else [9]. Active coping strategies were most commonly used in the operating theatre staff studied, while avoidance behaviours occurred relatively infrequently.

In the study group, 41% of the employees showed Type D personality traits whose main characteristics are negative emotionality and social inhibition. In the study conducted, negative emotionality was more strongly marked than social inhibition. It was observed that people in this group significantly more often used the following strategies as a reaction to stress: discharge, use of psychoactive substances, cessation of activities and blaming themselves.

A study by Stychno et al. using the same tool showed that as many as 60.6% of the nurses surveyed had this personality type. The highest number of respondents with Type D personality was in the 51–60 years group. Personality type was also related to life satisfaction in those under 50 years of age. In subjects with other personality type, there were no statistically significant relationships between perceived life satisfaction and age [10]. High levels of stress at work reduce satisfaction with one's occupation. This relation is additionally influenced by type D personality (according to Yeon Hee Kim et al. it is 36–38% of nurses). These factors may in turn lead to professional burnout [11].

It is extremely important to notice the first disturbing symptoms as a consequence of high work stress and traits associated with type D personality and to implement appropriate actions. Preventive actions seem necessary to avoid serious consequences of stress [11].

Conclusions

1. The highest levels of stress are felt mainly by young women, not in a relationship, with short work experience. N but it would be useful to introduce systemic psychological support specifically targeted at this group.
2. Given the ongoing shortage of health care professionals, measures to prevent professional burnout should be implemented.
3. It seems necessary to show the best coping strategies especially for young people. A possible solution might be to offer classes while still in college that focus on preparing for stressful moments in future work, and teaching the most effective ways to cope with stress.
4. Nearly half of the respondents who worked in the OR experienced high levels of stress. Further research is needed to determine the exact reason for this result.

Implications for Nursing Practice

Nurse practitioners are very close to the patient whom they accompany in a difficult situation for the patient. They help patients not only through knowledge and skills but also through emotional support. This is a difficult and extremely responsible job, which is why employees often experience increased stress. It is important to know how to best handle this stress. In order for the occurring stress not to lead to negative consequences, including professional burnout, it seems necessary to introduce professional support for nurses aimed at learning the most effective and efficient ways to cope with stress.

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