

# THE LEVEL OF OCCUPATIONAL STRESS AND ANXIETY IN THE COORDINATING NURSE DURING THE COVID-19 PANDEMIC: A CASE STUDY

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## ABSTRACT

**Introduction:** The COVID-19 pandemic has been a challenge for healthcare system and caused overloading of hospital staff. Herein we present an assessment of the occupational stress and anxiety in the coordinating nurse during the COVID-19 epidemic.

**Material and methods:** The case study method was used in the study. The study was conducted in October 2020, and the subject was the coordinating nurse working in an intensive care unit (ICU) in Krakow. The author's questionnaire, the GAD-7 generalized anxiety questionnaire by Spitzer, and the Occupational Stress Indicator (OSI-2) questionnaire by Widerszal-Bazyl were used.

**Results:** The nurse showed clinically significant symptoms of generalized anxiety disorder. The global indicator of sources of tension in the nurse totalled 229 points, sten 10, and it was high in comparison with the norms of Polish managers.

**Conclusions:** Fighting the COVID-19 pandemic resulted in the occurrence of a clinically significant level of generalized anxiety disorder and a high level of stress in the coordinating nurse.

**Key words:** anxiety, occupational stress, COVID-19 pandemic, coordinating nurse.

## INTRODUCTION

Occupational or work-related stress is a psychological phenomenon known to every employee, and it has a subjective character. Hence, there are difficulties in defining and assessing the level of stress in the work environment. Occupational stress is a stress reaction to stimuli occurring in various work-related situations [1]. It is an unfavourable reaction of an employee to excessive pressure or other requirements from the employer [2].

In the source literature there are many theories concerning occupational stress. Most of them recognize stress as the relationship between a person and the environment. Depending on this assessment, emotional, cognitive, and behavioural processes are activated. The reaction to stress at work depends on many internal (psychological) and external (situation) factors [3]. In another model according to Cox *et al.* (2000), stress is the result of a transaction between

the environment – needs, requirements, and limitations and the employee – their needs, capabilities, and values [2]. What is useful for the needs of this study, according to its authors, is the theory of occupational stress by R. Karasek, who explains the relationship between stress at work and the health of employees. The author of this theory points out that stress at work occurs when an individual, making a comparison between job requirements and control, assesses that the former is too high and the latter is too low. This model was extended with social support by R. Karasek and T. Thorell. Thus, there may be 4 basic situations: 1) high requirements and low control; 2) high requirements and high control; 3) low requirements and low control; and 4) low requirements and high control. Among the factors that may cause stress in employees, Karasek listed the following: quantitative and qualitative work overload, qualitative underload, lack of support, lack of control

over work, conflicting or unclear roles, and physical working conditions [4, 5]. On the basis of research on stress at work, Cooper and Marshall identified 5 categories that can be divided into stressors: those connected with work, the role played by the employee in the company, professional career, interpersonal relationships, and the climate in the organization [6].

The effects of occupational stress have a negative impact on the employee, the employer, and the workplace itself. Chronic stress in the workplace significantly increases the risk of psychosomatic and financial costs. The first group includes the following: conflicts, bad work atmosphere, drop in morale, and psychological disorders such as occupational burn-out, neurosis, depression [7]. The somatic effects of chronic stress include disturbances in the functioning of the cardiovascular, digestive, endocrine, and neurological systems [8, 9]. The financial effects include, above all, the costs of increased absence, fluctuations, the costs of accidents and related compensation, the cost of equipment damage, and the costs of negative behaviour among employees such as vandalism and theft [7].

The consequences of stress at work listed in the literature include making mistakes under stress, decreasing productivity, negative attitude to introduced changes, high staff turnover, decreased commitment to work, lowered quality of services offered, and interpersonal conflicts with colleagues and superiors [10-12].

Anxiety is an emotional state connected with the body's defensive reaction to a potential threat manifested by concern. Due to its complicated nature, we can describe it as a process, focusing on its physiological course and reactions occurring in the body during its formation, or as a psychological state [13-15]. In the psychological aspect, there is an important distinction between anxiety and fear. In psychological terminology, the feeling of anxiety and fear are 2 different emotional states. According to the concept of Dollard and Miller, anxiety is a kind of fear with an unclear source of origin or a source that has been repressed by a given person. Two types of anxiety are described in the source literature: anxiety as a state, which is understood as a transient and passing emotional state, is a categorical concept, and is a type of anxiety usually considered in psychiatric classifications; and anxiety as a trait, which means a constant personality trait in which the body shows readiness to react with a state of fear in certain situations [16]. Long-term exposure to anxiety stimuli may result in serious disorders, both physical and mental. Physical complications of chronic anxiety are primarily connected with the activation of stress hormones in response to an anxiety stimulus. Therefore, they largely overlap with the consequences of long-term exposure to stress. Physical complications of long-

term anxiety include, among others: immune system dysfunction, endocrine system disorders, changes in the autonomic nervous system, disruption of the sleep-wake cycle, eating disorders, changes in the hypothalamic-pituitary-adrenal axis, increased risk of developing autoimmune diseases, migraine headaches, muscle pains that may turn into fibromyalgia, and breathing difficulties [17]. In the mental sphere, the complications of chronic exposure to anxiety stimuli include a number of symptoms, such as loss of control over emotions, inability to function in the professional and social sphere, dysregulation of behaviour in many areas, severe limitation or even complete lack of ability to shape relations with the environment, even making it impossible to function in the scope of simple everyday activities and self-help activities [13, 18].

The COVID-19 pandemic initially began as an epidemic in November 2019 in the city of Wuhan in central China. Due to the increase in the number of new cases in an increasingly large area, on 11 March 2021 it was recognized by the World Health Organization as a pandemic [19-22]. In the face of the new virus, nurses had to cope with a number of difficulties in performing their work. One of the first obstacles was the information chaos connected with the constantly changing procedures for dealing with COVID-19 patients, as well as the lack of experience in dealing with COVID-19 patients and the lack of sufficient data on the course and complications of the disease. From the beginning of the epidemic in Poland, nurses have been exposed to intense and chronic stress [23, 24].

Among the new procedures introduced as a result of the COVID-19 pandemic, we can mention the following:

- Change of the work system, as a result of which permanent teams closely cooperating with each other were created; work in the rotation system and overtime.
- Division of hospital wards into the so-called "clean" and "dirty" zones, which was intended to provide the staff with a place to rest, as well as exchange information between teams.
- Additional uniforms in accordance with WHO guidelines [23, 24].

The problems that nurses had to face during the COVID-19 pandemic also included difficult working conditions due to overcrowding of hospitals and the need to work in newly established temporary hospitals. The lack of a sufficient number of medical personnel together with the constantly increasing number of new patients resulted in the fact that many nurses had to be delegated to work in temporary hospitals or COVID wards. Among the unpleasant situations to which nurses were exposed one can mention hate and a sense of stigmatization and rejection [20, 21].

The COVID-19 pandemic was also a challenge for the management staff in healthcare units. Nursing team management staff played the leading role in dealing with nurses' anxiety and concerns connected with the pandemic by supporting their mental and emotional health, by means of organizational policy as well as providing a safe work environment [25].

The aim of the study was to assess the level of occupational stress and anxiety in a nurse coordinating the work of the team in the intensive care unit during the COVID-19 epidemic.

## MATERIAL AND METHODS

The subject of the study was a coordinating nurse employed in an intensive care unit (ICU) in one of the hospitals in the city of Krakow. The study was conducted online in October 2020. It was voluntary and anonymous. The surveyed person was informed about the purpose and course of the study and gave informed consent to take part in the study. The case study method was used in this study, which is used in qualitative research. The case study method consists of a detailed description of the characteristics and experience of the surveyed individual and may involve both the entire social group and a single person. What is analysed is the condition of a given individual resulting from its clinical, cultural, or psychosocial situation [26]. The research tools used in the study were: the author's interview questionnaire, the GAD-7 generalized anxiety questionnaire by Spitzer, and the Occupational Stress Indicator (OSI-2) Questionnaire by Cooper, Sloan, and Williams in the Polish adaptation of Widerszal-Bazyl.

The Generalized Anxiety Questionnaire (GAD-7) is a screening tool that aims to determine the feelings connected with generalized anxiety disorder. On the basis of the result of the questionnaire, it is possible to assess if a further visit to a psychologist or psychiatrist is advisable. The questionnaire includes 7 questions about the surveyed person's state of being in the preceding 2 weeks. The responses are rated on a 4-point Likert scale, where 0 indicates *not at all*, 1 – *several days*, 2 – *more than half the days*, and 3 – *nearly every day*. The assessment is based on the past 2 weeks. Scores of 5, 10, and 15 are mild, moderate, and severe, respectively. A score above 10 indicates the presence of symptoms of generalized anxiety. The questionnaire has high internal consistency, with a test sample  $\alpha = 0.93$  and in the second study ( $N = 310$ )  $\alpha = 0.87$  [27].

The Stress at Work Questionnaire (OSI-2) is an adaptation of the Occupational Stress Indicator questionnaire by L. C. Cooper, S. J. Sloan, and S. Williams, and it is used to measure stress at work among employees in managerial positions. The basic assumptions of this questionnaire were: 1) occupational

stress is a negative phenomenon, 2) stress is subjectively perceived by an employee, 3) it results from an improper way of dealing with difficulties at work, which happen all the time, and 4) the questionnaire focuses on chronic stress. The questionnaire has good psychometric properties, proven in English and Polish studies; subscales show coherence from 0.70 to 0.86. The questionnaire consists of 15 subscales, which together form 6 scales: job satisfaction, mental state, physical state, sense of control, coping, and sources of tension. The answers are given on a 6-point Likert scale, where 1 means "strongly disagree" up to 6, which means "strongly agree". The results are interpreted with reference to the sten norms, and they should be compared to the norms of Polish managers separately for men and women. The results of 5-6 stens are treated as mean, stens 1-4 as low, and stens 7-10 as high [28].

## A CASE STUDY

The person who took part in the study was a 33-year-old woman who was a coordinating nurse in the ICU in a teaching hospital in the city of Krakow. The hospital was a leading centre in the Lesser Poland Province in fighting the COVID-19 pandemic since March 2020. During the study the nurse had been working for 8 months fighting the epidemic. The nurse had 10 years of work experience in the profession, a master's degree in nursing, as well as a specialization in anaesthesiology and intensive care completed in 2019.

She assumed her present managerial position 2 years prior and at the time of the study was in charge of a group of 95 employees. The nurse was responsible for supervision, coordination, and organization of work of nurses and other staff cooperating in nursing care in the ward. The surveyed worked full-time: 180 hours a month. From March 2020 she declared working 240 hours a month, which resulted in 60 extra hours a month on average. The coordinating nurse declared that over the last 3 months she had been off work for 5 days because she had been ill.

The surveyed coordinating nurse was unmarried and did not have children, and she assessed her financial situation as good. The surveyed lived in a city of over 500,000 inhabitants. She did not use stimulants in the form of alcohol or cigarettes.

## RESULTS

According to the surveyed nurse, work overload during the COVID-19 pandemic was definitely higher. Moreover, the surveyed rated the level of experienced stress connected with work in a COVID ward as very high – 9 points (on a scale from 1 to 10 points). In the surveyed nurse's opinion, the major obstacles in co-

ordinating the work of the team were as follows: an insufficient number of nurses, tensions between the members of the team, and increased anxiety among the staff. The surveyed nurse rated well the preparation of the ward for admitting patients with a severe course of COVID-19 infection. According to the surveyed, the biggest challenges at work during the pandemic were an insufficient number of staff, supply shortages, fear of falling ill, tiredness, and working overtime.

The surveyed nurse indicated that she had quite often considered changing her current job, mentioning too many overtime hours and problems with the staff as the main problems in the position.

The surveyed coordinating nurse was diagnosed with clinically significant symptoms of generalized anxiety disorder (12 points according to the GAD-7 scale). She was irritated almost every day, and for many days she experienced anxiety and a feeling that something bad was going to happen (Table 1).

It was observed that the surveyed coordinating nurse showed low satisfaction with the job itself (1 sten) as well as with the organization (1 sten) (OSI-2). Comparing job satisfaction with the results of Polish managers, the surveyed nurse achieved very low scores.

Mental health – satisfaction and peace of mind – was rated higher (33 points, sten 7) in the surveyed nurse in comparison with Polish managers (25-18 points, sten 5). However, psychological resilience was below the norms for Polish managers by 6 points (sten 2). The physical state in the coordinating nurse was on a moderate level, just as in Polish managers (23 points, sten 5 vs. 23 points, sten 5).

Analysing occupational stress in terms of sources of tension, the results indicate the presence of numerous stressors in the surveyed coordinating nurse. The global indicator of sources of tensions in the sur-

veyed nurse totalled 229 pts, sten 10, and it was high in comparison with the norms of Polish managers (141-153 points, sten 5). In the surveyed coordinating nurse, it was observed that all sources of tensions were on a high level (sten 9-10). The biggest point differences in comparison with norms concerned sources of tension: relations with employees (by 16 points), excessive workload (by 15 points), and work/life balance (by 14 points). On the other hand, the study showed that the surveyed person had the ability to cope with chronic stress at work globally at an average level (sten 5). The surveyed nurse coped poorly with stress through control (3 sten) in comparison with Polish managers (19 points, sten 3 vs. 24 points, sten 5). Detailed data are presented in Table 2.

**Table 2.** Occupational stress and coping with stress of the examined coordinating nurse in the ICU ward during the COVID-19 pandemic

| Stress at work (OSI-2) Subscales   | Points | Sten | Sten standards for Polish managers (female) Minimum-maximum, sten |
|------------------------------------|--------|------|---|
| <b>Satisfaction</b>                |        |      |   |
| Satisfaction with the work itself  | 13     | 1    | 25-26, sten 5   |
| Satisfaction with the organization | 15     | 1    | 25-27, sten 5   |
| Globally                           | 28     | 1    | 50-53, sten 5   |
| <b>Mental health</b>               |        |      |   |
| Satisfaction and peace of mind     | 33     | 7    | 25-28, sten 5   |
| Psychological resilience           | 11     | 2    | 17-17, sten 5   |
| Globally                           | 44     | 5    | 40-44, sten 5   |
| <b>Physical state</b>              |        |      |   |
| Peace and energy                   | 23     | 5    | 23-25, sten 5   |
| <b>Sources of tensions</b>         |        |      |   |
| 1. Work overload                   | 35     | 10   | 20-21, sten 5   |
| 2. Relations with people           | 48     | 10   | 32-33, sten 5   |
| 3. Recognition                     | 23     | 10   | 14-15, sten 5   |
| 4. Organizational climate          | 23     | 10   | 14-14, sten 5   |
| 5. Personal responsibility         | 24     | 10   | 15-16, sten 5   |
| 6. The managerial role             | 20     | 9    | 13-14, sten 5   |
| 7. Work/life balance               | 34     | 10   | 19-21, sten 5   |
| 8. Everyday troubles               | 22     | 10   | 13-14, sten 5   |
| Globally                           | 229    | 10   | 141-153, sten 5   |
| <b>Coping with stress at work</b>  |        |      |   |
| Coping (globally)                  | 37     | 5    | 37-39, sten 5   |
| Coping through control             | 19     | 3    | 24-24, sten 5   |

Legend elaborated by the author. 1-4 sten – low score, 5-6 sten – moderate score, 7-9 sten – high score.

**Table 1.** The level of anxiety in the surveyed coordinating nurse in the ICU ward during the COVID-19 pandemic according to the Generalized Anxiety Disorder Questionnaire (GAD-7)

| GAD-7 Questionnaire  | Number of points |
|--|------------------|
| Over the last 2 weeks, how often have you been bothered by the following problems? |                  |
| 1. Feeling nervous, anxious, or on edge  | 3                |
| 2. Not being able to stop or control worrying                                      | 1                |
| 3. Worrying too much about different things  | 2                |
| 4. Trouble relaxing  | 0                |
| 5. Being so restless that it is hard to sit still                                  | 1                |
| 6. Becoming easily annoyed or irritable  | 3                |
| 7. Feeling afraid, as if something awful might happen                              | 2                |
| Total  | 12               |

The author's own elaboration. 0 – not at all, 1 – several days, 2 – more than half these days, 3 – nearly every day.

## DISCUSSION

There are few qualitative studies in the source literature on occupational stress and anxiety in the coordinating nurse during a crisis situation such as the COVID-19 pandemic.

Occupational stress is a factor that occurs in almost every position, where it can often have a motivating influence and beneficial effect on the employee. However, in a situation where the number of stressors is too large or they become too intense, there may be negative health effects for the employee, both in terms of physical and mental health, and for the employer in the form of costs of sickness and accident absence or fluctuations [10, 11, 29].

The COVID-19 pandemic is a catastrophic crisis situation that causes the impact of many stressors on the individual. This difficult situation intensifies the experience of fear, anxiety, and depression. Decisions made at various levels under time pressure cause destabilization and uncertainty. In turn, the frequent experience of death, accompanying epidemics, increases the risk of traumatic disorders. The report by B. Buchelt and I. Kowalska-Bobko on the health of medical professionals and managers of medical staff in the 2020 pandemic indicates a deterioration in the emotional state (emotional exhaustion) of nursing staff. The research conducted by the authors of the report showed a deterioration of mental condition in 38% of the surveyed nurses, and 20% of them declared the need to use psychological help on their own. The surveyed nurses (34%) indicated that they experienced hate manifested in abusive insults, lack of help, or destruction of property [30].

The subject of the author's own study was a 33-year-old coordinating nurse of the ICU ward of one of the hospitals in the city of Krakow. The study showed a high level of generalized anxiety in the coordinating nurse during the COVID-19 epidemic. As far as mental health is concerned, it was shown that the nurse had no problems in terms of peace of mind; however, she did have problems with psychological resilience, which has a direct impact on the way of coping with stress. It enables adaptation to changing conditions and stressful experiences, and it facilitates distancing oneself from emotionally negative experiences. Chronic exposure to stress may also result in moderate levels of physical health (peace and energy) and loss of the sense of control (sten 3). The presence of stressors such as workload, difficulties with employee relations, organizational climate, recognition, personal responsibility, problems with maintaining work/life balance, and managerial role was observed. It was found that the surveyed coordinating nurse had problems in relations with employees (10 sten), which may be connected with problems in managing the nursing staff during the period hin-

dered by the COVID-19 epidemic. The study showed the presence of stressors connected with difficulties in maintaining a work-life balance in the surveyed nurse (sten 10), which may indicate a conflict of roles that the nurse performed in the organization and outside it. The factors that may have influenced the intensification of sources of tension at work that the coordinating nurse had to struggle with in connection with the COVID-19 epidemic included the following: insufficient staff, shortages in hospital supplies, fear of falling ill, fear for the health of the family, too much overtime, and tiredness. The mentioned stressors indicate the presence of intense stress in the surveyed coordinating nurse. During the COVID-19 pandemic she worked an average of 240 hours per month, which exceeded the accepted norms of working time of 37 hours 55 minutes per week (Article 93 of the Act on Medical Activity) [31]. In a study conducted as part of the NEXT project, it was shown that the working time per week of Polish nurses is the longest in comparison to European Union countries [11]. The study, conducted among 1023 nurses in the Lesser Poland Province, showed that almost half of them worked in 2 workplaces, where the average working time was 160 hours a month. This is twice the workload [32]. In the opinion of the surveyed coordinating nurse, recognition as a stressing factor was at a high level (10 sten), which is connected with the lack of promotion and career development opportunities in the workplace. According to Maslach and Leiter, recognition relates to job satisfaction, intangible rewards and promotion opportunities, and also refers to the concept of flow [33].

A low level of satisfaction with work and with the organization (sten 1) was found in the surveyed coordinating nurse. She expressed a willingness to change her place of work. A report by B. Buchelt and I. Kowalska-Bobko (2020), based on research conducted among 1256 doctors and 160 nurses, showed that 10% of nurses planned to leave the labour market or emigrate after the pandemic, and 18% intended to change their workplace [30].

The examined person had the ability to cope with stress at a moderate level. Coping with stress through control was presented by the examined nurse at a low level (3 sten). According to the research by Maslach and Leiter, the sense of control concerns the freedom to make decisions at the workplace and their influence on the way they performed their work [33]. In the work-related stress model by R. Karasek, as well as the workload, the sense of control is mentioned, where it is widely used in research on occupational stress and its consequences [4, 5].

Anxiety affects the effectiveness of action and work efficiency as well as the state of being and health [17]. The examined coordinating nurse in the ICU had a clinically significant level of generalized

anxiety disorder. In a study conducted by Malinowska-Lipień *et al.*, in a group of 577 nurses working during the third wave of the pandemic in Lesser Poland, a high level of anxiety suppression was observed, namely 18.25 points according to the Emotional Control Scale, and it was significantly correlated with the lack of possibility to perform a COVID-19 test at work [34]. The United Nations (UN) report of 13 May 2020 on mental health during the COVID-19 pandemic among medical staff states that as many as 50% indicate the presence of depression, 45% anxiety, and 35% insomnia, which significantly affect the level of perceived stress and sense of security [35].

Chronic stress at work in the era of the COVID-19 pandemic may lead to decreased effectiveness of the employee and an increased number of errors at work, as well as the desire to change the place of employment. An extreme effect of exposure to stress in the work environment may be occupational burnout. Due to the numerous negative effects of chronic stress, it is particularly important that the person working in the position has the ability to relieve negative emotions and be able to use constructive styles of coping with difficult situations. In the case of positions particularly burdened with the presence of numerous stressors, it is essential that the employer provides employees with appropriate working conditions, recognition (professional development opportunities, promotion), as well as access to psychological support.

## CONCLUSIONS

On the basis of the available literature and research results, the following conclusions can be drawn:

1. Fighting the COVID-19 pandemic resulted in the occurrence of clinically significant level of generalized anxiety disorder and a high level of stress in the surveyed coordinating nurse.
2. The surveyed coordinating nurse was found to have low job satisfaction and willingness to leave work, as well as a low level of coping with stress through control due to the COVID-19 pandemic and occupational stress.
3. Due to the negative effects of stress during the COVID-19 pandemic, psychological assistance programs for nursing managerial staff should be implemented in healthcare facilities.

### Disclosure

The authors declare no conflict of interest.

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