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## POST-TRAUMATIC STRESS DISORDER AMONG NURSING STAFF FACING THE COVID-19 PANDEMIC<sup>7</sup>

### **Abstract:**

**Introduction:** *The SARS-CoV-2 coronavirus pandemic has left a significant impact on the mental health of healthcare workers, including nurses. Some of them have experienced the development of post-traumatic stress disorder (PTSD) symptoms. Therefore, it is crucial to build individual mental resilience,*

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*which will help effectively strengthen post-traumatic growth (PTGI). The key factor here is one's ability to cope with stress.*

**Objective:** *The aim of the research was to assess the level of post-traumatic stress among nursing staff in the face of the COVID-19 pandemic.*

**Materials and Methods:** *The study involved 101 nurses working in anesthesia and intensive care units, general surgery, and internal medicine in a temporary hospital facility. The research was conducted using a diagnostic survey method with the use of an author's questionnaire and standardized research tools: the PCL-5 Questionnaire, Posttraumatic Growth Inventory (PTGI), and Mini-COPE Stress Coping Inventory. A significance level of  $p \leq 0.05$  was adopted in statistical tests.*

**Results:** *The study revealed that emotions accompanying nurses' work during the COVID-19 epidemic included helplessness (61.39%), fear (58.42%), and anger (53.47%). At least moderate PTSD symptoms were identified in half of the participants (50.5%). Half of the respondents (50.5%) showed a low level of post-traumatic growth, and only 35.64% exhibited a high level. Strategies used to cope with stress included active coping and engaging in other activities. The intensity of PTSD symptoms significantly positively correlated with blaming and distraction strategies ( $p < 0.05$ ). Posttraumatic growth was significantly determined by positively oriented strategies such as active coping, planning, and seeking support ( $p < 0.001$ ). Support received played a significant role in the stress-fighting process and achieving positive changes after trauma.*

**Conclusions:** *Nursing work in the conditions of the COVID-19 pandemic intensifies the risk of developing PTSD. A variety of stress-coping strategies were employed in the process of achieving positive changes.*

**Keywords:**

*COVID-19, nurse, post-traumatic stress.*

## **Introduction**

The year 2020 proved to be exceptional, giving rise to various behaviors and accompanying emotions worldwide [1-3].

The SARS-CoV-2 coronavirus pandemic left a profound impact on healthcare workers, including nurses. Often, a significant portion of responsibility for the health and life of patients rested on them. Nurses, witnessing not only patients but also colleagues falling ill and succumbing to the disease, frequently experienced stress. Undoubtedly, the stress generated a sense of much greater risk than in the general population, involving concerns about infection and the fear of transmitting the infection to loved ones.

Additionally, there was stress related to the compulsion to adapt to many new procedures in their professional work and the difficulties arising from them.

The nursing profession is one of the most stressful occupations, associated with frequent experiences of negative emotions, anxiety, and tension. This is true under "normal" working conditions, and the situation significantly worsened in the face of the epidemiological threat [4]. There is an intensification of anxiety reactions, states of mental and physical exhaustion, helplessness, insomnia, a sense of defeat, sometimes burnout, or depressive episodes [1,5,6].

The level of stress experienced by nurses battling the pandemic can be compared to that of medics during wartime. Extremely stressful and traumatic events resulting from experiencing life-threatening events sometimes exceed the psychological adaptive capacities of nurses. For some personnel, this may lead to the development of post-traumatic stress disorder (PTSD) symptoms [7]. Therefore, building individual psychological resilience during a pandemic is incredibly important, effectively helping to alleviate the consequences of trauma. The key lies in one's ability to cope with stress, professional assistance, and support [5,6].

### **Aim**

The aim of the study was to assess the level of post-traumatic stress among nursing staff in the face of the COVID-19 pandemic.

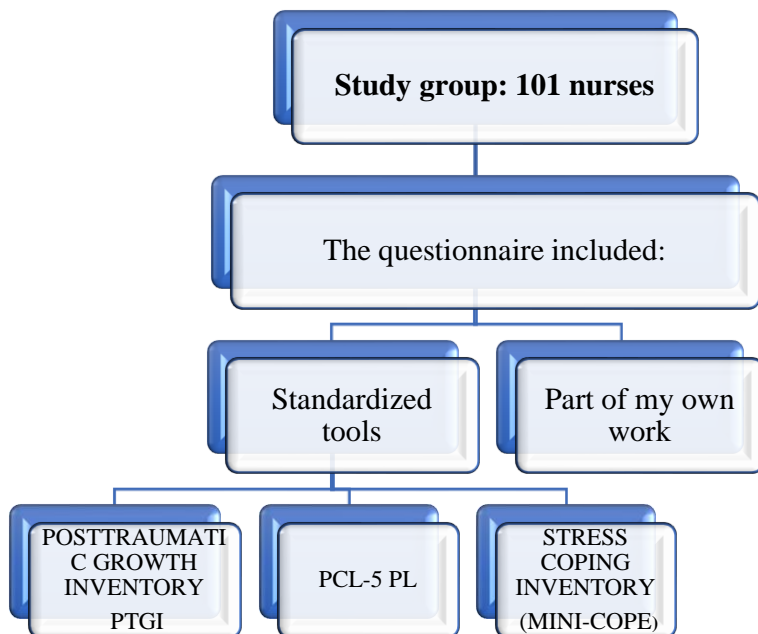
### **Materials and Methods**

The research was conducted among 101 nurses working in a medical facility transformed into a temporary hospital from January 2nd to March 31st, 2022.

A diagnostic survey method was employed for the study. The research tool was a custom questionnaire containing questions related to socio-demographic data and the subject of the study, such as working conditions and atmosphere in the medical facility transformed into a temporary hospital, experienced emotions, and received support. Three additional standardized questionnaires were used, namely the PCL-5 Questionnaire, Posttraumatic Growth Inventory (PTGI), and Mini-COPE Stress Coping Inventory, to assess the level of post-traumatic stress among nursing staff in the face of the COVID-19 pandemic. The questionnaires consisted of closed and semi-open-ended questions, allowing for personal responses. The questions were single or multiple-choice.

The diagram of the aforementioned research tools is presented graphically in Figure 1 below.

Fig. 1. Diagram of the research tool for the examined group of nurses and nursing staff.



Source: Author's own elaboration.

Before the commencement of the study, participants were informed about its purpose and the method of filling out the questionnaires. The research was voluntary and anonymous. It is worth noting that none of the respondents declined to participate.

The collected results underwent quantitative, qualitative, and statistical analysis using Microsoft Office Excel 2021 and SPSS. The relationship between variables was established using Pearson correlation coefficients (R). Group comparisons were analyzed using the Mann-Whitney U test (U) or Kruskal-Wallis test (H) depending on the number of groups. To examine the relationship between nominal variables, the chi-square independence test ( $\chi^2$ ) was used. The  $\chi^2$  test is based on comparing observed values (obtained in the study) with theoretical values (calculated assuming no relationship between variables). Large differences indicate a dependency between variables. Values of the test meeting the criterion  $p \leq 0.05$  were considered statistically significant.

Three standardized questionnaires were utilized as research tools:

- Posttraumatic Growth Inventory (PTGI) – in the Polish adaptation by N. Ogińska-Bulik and Z. Juczyński. The tool assesses positive changes

resulting from the experience of various traumatic events. It consists of 21 positively formulated statements describing various changes following a traumatic event. The inventory examines 4 aspects (factors) of posttraumatic development [7-9]:

1. Changes in self-perception — after experiencing trauma, an individual perceives new possibilities and feels an increase in personal strength.
2. Changes in relationships with others — a greater sense of connection with others, increased empathy, and altruism.
3. Greater appreciation for life — a change in life philosophy, priorities, and greater appreciation for each day.
4. Spiritual changes — better understanding of spiritual issues and increased religiosity.

- PCL-5 Questionnaire PL by Weathers, Litz, Palmieri, Marx, and Schnurr. National Center for PTSD, USA, in the Polish version: Zawadzki B, Popiel A, Białecka B, and Pragłowska E. University of Warsaw. PCL-5 is a 20-item self-report scale that assesses 20 PTSD symptoms in DSM-5. The PCL-5 questionnaire is designed for screening studies and allows for the temporary diagnosis of PTSD. Responses are given on a 5-point Likert scale for each statement. The interpretation of PCL-5 can be assessed in various ways. The total score for the intensity of symptoms, ranging from 0 to 80 points, is obtained by summing the results for each of the 20 items. The cutoff point of  $PCL-5 \geq 33$  points indicates probable PTSD [10]. Assessment of PTSD - 20 symptoms in 4 categories:

1. Re-experiencing (R).
2. Avoidance (A).
3. Negative changes in cognitive and emotional aspects (NACM).
4. Arousal and Reactivity (AR).

- Stress Coping Inventory (Mini-COPE) – developed by Ch. S. Carver, adapted by Z. Juczyński and N. Ogińska-Bulik, a standardized tool used to assess coping in stressful situations [11]. It is a shortened version of the Multidimensional Coping Inventory (COPE). It consists of 28 statements, making up 14 coping styles in stressful situations - 2 items for each coping style. The higher the score, the more a particular coping strategy is utilized in dealing with stress.

Coping strategies are divided into 4 categories, corresponding to assigned scales:

- I. Active coping - includes: active coping, planning, positive re-evaluation.
- II. Helplessness - includes: substance use, cessation of actions, self-blame.
- III. Seeking support - includes: seeking emotional support, seeking

instrumental support.

IV. Avoidant behaviors - includes: distraction, denial, venting.

## Results

The study group comprised 101 individuals working as nurses. The majority, 97.03%, were women (n=98). There were 3 men in the group (2.97%). The age of the study group ranged from 30 years (n=46; 45.54%) and below to not exceeding 60 years (n=6; 5.94%).

The overwhelming majority of the respondents felt an increased workload related to the COVID-19 pandemic in their workplace (n=96, 95.05%). Two participants did not feel any additional burden (1.98%), and three individuals had no opinion on this matter (2.97%).

The most commonly cited reasons for increased workload at the workplace were an excess of duties (n=69, 68.32%) and a lack of nursing staff (n=66, 65.35%). Almost half of the respondents additionally identified the use of protective clothing and equipment (n=45, 44.55%) and chaos in work organization (n=45, 44.55%) as burdensome. The least common reasons for burden were increased working hours (n=9, 8.91%) and a lack of personal protective equipment (n=12, 11.88%).

More than half of the respondents unequivocally stated that they experienced stress at work during the COVID-19 pandemic (n=60, 59.41%). Thirty-six respondents considered their work to be rather stressful during this time (35.64%), and five respondents found it to be average in terms of stress (4.95%).

Among the emotions accompanying work in the conditions of the COVID-19 pandemic, respondents most frequently indicated helplessness (n=62, 61.39%), fear (n=59, 58.42%), anger (n=54, 53.47%), and sadness (n=44, 43.56%). In the surveyed group, 18 individuals expressed feelings of loneliness and anticipation each (17.82%), while 17 individuals mentioned a sense of strength, motivation, and surprise each (16.83%). Among the respondents, 15 experienced disgust (14.85%), 14 apathy (13.86%), trust was mentioned by 9 (8.91%), and calmness by 5 (4.95%). Three individuals added a sense of fatigue (2.97%).

The majority of respondents declared receiving support while performing professional duties, with 13 individuals expressing a definite opinion (12.87%) and 44 individuals expressing a rather positive opinion (43.56%). However, almost half of the respondents indicated a lack of support, with 12 individuals expressing a definite lack (11.88%) and 32 individuals expressing a rather negative opinion (31.68%) (Table 1).

*Table 1. Received Support as Perceived by Respondents.*

<b>Support received</b>	<b>Number</b>	<b>Percentage</b>
Yes	13	12,87%
Rather yes	44	43,56%
Rather not	32	31,68%
No	12	11,88%
<b>Total</b>	<b>101</b>	<b>100,00%</b>

*Source: own study.*

The most commonly indicated source of support was family and close ones (n=59, 58.42%), followed almost equally by nurse colleagues (n=58, 57.43%). Among other sources, 15 individuals (14.85%) mentioned their supervisor, 9 (8.91%) mentioned doctors, and the same number mentioned society. Three individuals each mentioned patients and media (2.97%). None of the surveyed nurses cited the employer as a source of support. One in four respondents stated that they had no support (n=25, 24.75%).

Among the respondents, one in four nurses (n=25) stated that they did not receive support in their work (24.75%), while only 3 individuals declared that they did not need support during the COVID-19 pandemic (2.97%). Comparing the types of expected and received support, emotional support was most commonly expected (n=69, 68.32%) and received (n=56, 55.45%). The second most expected type of support was informational support (n=54, 53.47%), but only 1/5 of the respondents received it (n=20, 19.8%). Another received type of support was social support (n=24, 23.76%), expected by 35.64% of the respondents (n=36). Nearly 1/3 of the respondents expected material support (n=30, 29.7%), and one in ten individuals received it (n=10, 9.9%).

### **Analysis of PTSD and PTGI Severity in the Studied Group**

In the first stage of data analysis, the means of symptoms constituting post-traumatic stress disorder (PTSD) were calculated. The overall mean for the PCL-5 Scale results was 32.73±19.41 points, which, considering the criterion of 33 points, corresponds to the threshold value indicating the presence of PTSD. The means of the four dimensions comprising it were calculated, taking into account the varying number of items for each dimension. Participants showed the highest severity of symptoms in the dimension of arousal and reactivity (M=1.71), followed by avoidance (M=1.67), and negative cognitive and emotional changes (M=1.6). The least severe symptoms were observed in the intrusion dimension, i.e., re-experiencing (M=1.57) (Table 2).

Table 2. PTSD Symptoms according to the PCL-5 Scale in the Studied Group.

Symptoms of PTSD according to the PCL-5 Scale	M	SD	Min	Max
PTDS - total score	32,73	19,41	0	80
Introversi3n - re-experiencing (R)	1,58	1,13	0	20
Avoidance (A)	1,67	1,23	0	8
Negative cognitive and emotional changes (NACM)	1,60	1,07	0	28
Agitation and reactivity (AR)	1,71	1,00	0	24

Source: own study. M – mean, SD – standard deviation.

At least moderate to high severity of PTSD symptoms was found in half of the participants (n=51, 50.5%). The remaining 49.5% (n=50) exhibited low severity of symptoms.

The obtained overall mean for post-traumatic growth (PTGI) was 54.76±29.15 points, corresponding to a 5th percentile value. This result falls within average values. The analysis also examined the areas where the most significant changes occurred. For this purpose, the means of PTGI factors were divided by the number of statements assigned to each factor. The greatest changes occurred in factor 3, indicating a greater appreciation for life (M=2.97), followed by factor 1 – changes in self-perception (M=2.6), and factor 2 – changes in relationships with others (M=2.56). The smallest changes reported by participants were in factor 4 – spiritual changes (M=2.24) (Table 3).

Table 3. Post-traumatic Growth According to the PTGI Questionnaire in the Studied Group.

Post-traumatic growth according to the PTGI questionnaire I	M	SD	Min	Max
PTGI total	54,76	29,15	1	105
Factor 1 - Changes in self-perception	2,60	1,35	0	45
Factor 2 - Changes in relationships with others	2,56	1,44	1	35
Factor 3 - Greater appreciation of life	2,97	1,58	0	15
Factor 4 - Spiritual changes	2,24	1,71	0	10

Source: own study. M – mean, SD – standard deviation.

According to the norms developed for the PTGI questionnaire, half of the participants, 51 individuals (50.5%), demonstrated a low level of post-traumatic



growth. One-third of the participants (n=36) revealed a high level (35.64%), and 14 participants showed an average level (13.86%).

Next, correlation coefficients were calculated between dimensions of post-traumatic stress and post-traumatic growth. The results are presented in Table IV. The overall mean of PTSD symptoms showed a weak positive correlation with general post-traumatic growth (p=0.11). Among the analyzed dimensions, intrusion weakly and positively correlated significantly with overall growth (p=0.02), changes in self-perception (p=0.02), changes in relationships with others (p=0.01), and spiritual changes (p=0.03). This implies that higher levels of re-experiencing trauma are associated with greater changes in these areas of growth. Furthermore, negative emotionalism positively correlated with overall growth (p=0.03) and changes in self-perception (p=0.01). This indicates that higher intensity of negative emotions is associated with greater changes in overall post-traumatic growth and a better self-perception. Negative correlations were found between avoidance and post-traumatic growth in all its dimensions. Although statistical significance was not demonstrated, it suggests that avoidance of dealing with trauma disrupts positive changes in post-traumatic growth (Table 4).

Table 4. Correlation coefficients between PTSD dimensions and PTGI.

	PTGI Overall		Factor 1 – Changes in self-perception		Factor 2 – Changes in relationships with other		Factor 3 – Greater appreciation of life		Factor 4 – Spiritual changes
	R	p	R	p	R	p	R	p	R
PTSD - total score	0,16	0,11	0,17	0,08	0,14	0,16	0,11	0,17	0,16
Intrusion - re-experiencing (R)	0,23	0,02*	0,23	0,02*	0,25	0,01*	0,17	0,08	0,21
Avoidance (A)	-0,01	0,92	0,01	0,92	-0,04	0,69	-0,02	0,23	-0,06
Negative cognitive and emotional changes (NACM)	0,07	0,48	0,07	0,48	0,05	0,61	0,06	0,55	0,15
Agitation and reactivity(AR)	0,21	0,03*	0,24	0,01*	0,18	0,07	0,13	0,19	0,17

Source: own study. R – Pearson correlation, p – significance level \* – statistical significance.

## Strategies for Coping with Stress in the Studied Group

Table 5 presents the average results regarding stress coping strategies employed by the participants. The most frequently utilized strategies, as indicated by the mean scores, were active coping (M=3.77) and distraction (M=3.67). Planning (M=3.58) and acceptance (M=3.57) were chosen almost as frequently as coping methods. Emotional and instrumental support-seeking were also relatively common (M=3.22 and M=3.19, respectively). The least utilized strategies included alcohol use (M=1.44), behavioral disengagement (M=2.1), humor (M=2.35), and denial (M=2.43).

*Table 5. Stress Coping Strategies According to the Mini-COPE Questionnaire in the Studied Group.*

<b>Stress Coping Strategies</b>	<b>M</b>	<b>SD</b>
Active Coping	3,77	1,13
Planning	3,58	1,32
Instrumental Support Seeking	3,19	1,46
Emotional Support Seeking	3,22	1,58
Blaming	2,66	1,72
Turning to Religion	2,66	2,22
Positive Reframing	3,14	1,52
Venting	2,95	1,54
Acceptance	3,57	1,47
Negation	2,43	1,61
Behavioral Disengagement	3,67	1,44
Giving Up Activitie	2,10	1,56
Alcohol use	1,44	1,80
Sense of humour	2,35	1,68

*Source: own study.*

Strategies were categorized into four main styles of coping, corresponding to the assigned scales. Means were calculated for each style, considering the varying number of items for each. The most frequently utilized coping styles were active coping (M=3.50) and support-seeking (3.20). Conversely, avoidance behaviors were quite common among participants (M=3.02). The least frequently adopted coping styles were humor (M=1.17) and turning to religion (M=1.33) (Tab. 6).

Table 6. Stress Coping Strategies in the Studied Group.

Styles of coping with stress	M	SD
Active coping	3,50	1,18
Helplessness	2,07	1,50
Support Seeking	3,20	1,42
Avoidance behaviors	3,02	1,20
Turning to Religion	1,33	1,11
Acceptance	1,79	0,74
Sense of humour	1,17	0,8

Source: own study.

## Discussion

Nursing staff belongs to a group of professionals exposed to various types of stressors, including those of a traumatic nature. Nurses are the first individuals to provide professional assistance to patients and often have the most frequent contact with them. The threat is further compounded by the specific working conditions, such as the state of the COVID-19 epidemic. Working continuously in conditions of constant direct risk of infection, nurses are particularly susceptible to the psychological effects of the pandemic. In addition to the risk of viral illness, attention should also be paid to other stress-inducing factors, including concern about infecting loved ones, fatigue from excessive duties, and social stigma. The experience of trauma entails a range of negative consequences, including experiencing negative emotions such as fear, anger, or helplessness. Excess or accumulation of these emotions can lead to the development of post-traumatic stress disorder.

From our own research, it is evident that almost all nurses felt an increased workload related to the COVID-19 pandemic in their workplace (95.05%). The most frequently cited reasons for increased workload were excessive duties (68.32%), a lack of nursing staff (65.35%), the use of protective clothing and equipment (44.55%), and chaos in work organization (44.55%). Excessive workload contributed to an increase in the level of stress experienced by all respondents, with more than half feeling it significantly (59.41%). Among the emotions accompanying work in the conditions of the COVID-19 epidemic, respondents most frequently indicated helplessness (61.39%), fear (58.42%), anger (53.47%), and sadness (43.56%). Half of the respondents pointed to a moderate or high risk of developing PTSD (50.5%). The participants exhibited the greatest intensity of symptoms in the dimensions of arousal and reactivity, as well as avoidance.

Especially vulnerable to the psychological effects of the pandemic, healthcare workers, including nurses, are confirmed by studies conducted by other authors. In Buchelt's research, it was found that the epidemiological situation and working with coronavirus patients negatively impact the mental well-being of nurses. 38% of nurses reported a deterioration in mental health due to the COVID-19 epidemic. Key emotions accompanying work during the pandemic included concerns about the health and lives of loved ones (65.6%), anxiety (57.5%), psychological overload (48.2%), concerns about one's own health and life (36.3%), helplessness (25.6%), anger (25%), and fear (23.8%).

In addition to the mentioned factors, another source of stress for nurses was the world and society shaped by media influence. 33.8% of nurses participating in the study experienced online hate, primarily directed at themselves but also affecting their close ones (children, spouses, partners, parents, or friends). Manifestations of this included difficulties in enrolling children in preschool (school), property destruction, offensive insults, and refusal of services.

Research by Fukowska and Koweszko indicates that medical personnel during the COVID-19 pandemic show higher levels of stress, depression, and anxiety compared to non-medical professionals. These changes were most pronounced in the group of nurses. Similar results were obtained in studies conducted in China during the COVID-19 pandemic among approximately 10,000 doctors and nurses. Nurses, compared to doctors, exhibited significantly higher levels of anxiety and depression.

In Kang's research and other authors, direct contact with COVID-19 patients had a significant impact on the intensity of emotional disorders. Similarly, from our own studies, it appears that significantly greater intensity of PTSD symptoms pertained to individuals in contact with infected patients.

Studies conducted by Lai and other authors among Chinese hospital workers demonstrated that the current pandemic situation results in insomnia (34%), chronic anxiety (44.6%), depression (50.4%), and stress (71.5%) among the staff. It was emphasized that a higher risk of disorders exists among nurses than among doctors.

According to other Chinese studies conducted among medical workers exposed to SARS-CoV-2 infection, the most common disorders are post-traumatic stress disorder (73.4%), depression (50.7%), anxiety (44.7%), and insomnia (36.1%).

Research on traumatic stress has also provided data indicating that experiencing trauma can lead to the emergence of positive changes afterward. This is evidenced by the phenomenon of post-traumatic growth (PTGI), which occurs as a result of attempts to cope in difficult situations and becomes a source of development for individuals experiencing pathological stress.

In terms of changes in self-perception and relationships with others, the lowest changes were observed in the spiritual sphere. It was also demonstrated that the higher the intensity of trauma re-experiencing, the more significant the changes occurred in the areas of post-traumatic development. Additionally, negative emotional states positively correlated with overall post-traumatic development.

On the other hand, it was found that avoiding confronting trauma leads to a disturbance in positive changes in post-traumatic development. Effects of post-traumatic changes more aligned with our own research were obtained by Ogińska-Bulik in studies among medical workers, including paramedics and nurses. Among the surveyed employees, 27.6% revealed a low level of post-traumatic growth, 38.9% had a moderate level, and 33.5% experienced a high level. The research emphasizes that post-traumatic development is not merely a return to a state of balance after a traumatic experience. This phenomenon is something more, indicating that individuals undergo a transformation as a result of the trauma, allowing for a higher level of functioning than before. This implies that these individuals become stronger, more mature, self-assured, and value-sensitive towards others.

Numerous factors determine the occurrence of post-traumatic development, with coping mechanisms playing a crucial role. Factors favoring post-traumatic growth include acceptance, positive reevaluation, planning, coping based on activity and task, and to some extent, religion and a sense of humor.

In our own research, strategies most frequently utilized by nurses included active coping, planning, acceptance, and seeking emotional and instrumental support. On the other hand, a frequently adopted strategy was diverting attention from the problem by engaging in something else. It was also shown that the intensity of PTSD symptoms significantly positively correlated with blame or distraction strategies from the stressor by engaging in something else, denial, discharge, cessation of actions, or resorting to substances such as alcohol. Positive stress coping strategies, such as seeking support, acceptance, or positive reevaluation, showed a decrease in PTSD. Similarly, in the case of post-traumatic development, strategies focused on positive growth, such as active coping, planning, seeking support, and positive reevaluation, had a significant impact on its increase. It is worth noting the significant relationship between post-traumatic development and the use of avoidance strategies, primarily resorting to religion and a sense of humor. This means that in the examined group of nurses, both reducing the intensity of PTSD and, on the other hand, increasing post-traumatic development were influenced by resorting to constructive coping strategies in difficult situations.

Considerable attention is given to the significant role of support as a protective factor against the intensity of PTSD symptoms and reinforcing post-

traumatic growth. Our own research indicates that a higher level of perceived support significantly influenced a reduction in the intensity of PTSD symptoms. The received support also visibly influenced a higher level of post-traumatic development. Most respondents declared receiving support while performing professional duties, with 12.87% strongly agreeing and 43.56% rather agreeing. However, almost half of the respondents indicated a lack of support. The most commonly mentioned sources of support were family and close ones, nursing colleagues, supervisors, and society, but no one mentioned the employer.

The obtained results align with data presented in the literature, highlighting negative associations between support and PTSD symptoms among medical personnel and positive associations in post-traumatic development [21,23]. However, it is essential to emphasize the particular role of support during the COVID-19 pandemic.

According to research by Buchelt and Kowalska-Bobko, employers supported nursing staff during the pandemic. Nurses considered organizational and material measures as positive actions, including ensuring epidemiological safety (75%), the possibility of COVID-19 testing (53%), providing accommodation (39%), good work organization (34%), and facilitating family contacts (30%). However, in the emotional sphere, crucial for recognizing and mitigating PTSD intensity and strengthening post-traumatic development, only 17% of nurses indicated that they were provided with opportunities for psychological assistance. Nurses stressed the importance of proper personal protective equipment and a positive work atmosphere with support from superiors and employers during the pandemic. Buchelt and Kowalska-Bobko suggest that nurses should have continuous access to psychological assistance [12].

## **Conclusions**

The COVID-19 epidemic negatively impacts emotions among nursing staff, causing stress and eliciting feelings of helplessness, fear, and anger.

Half of the surveyed nurses show at least moderate or high intensity of post-traumatic stress disorder (PTSD) symptoms, which most commonly manifest in arousal and reactivity, as well as avoidance.

Among the stress coping strategies most frequently utilized by surveyed nurses are active coping and diverting attention to something else.

The intensity of PTSD symptoms significantly positively correlates with blame or distraction strategies from the stressor by engaging in something else, denial, discharge, cessation of actions, or resorting to alcohol.

Positive post-traumatic development is significantly reinforced by strategies focused on positive growth, such as active coping, planning, seeking emotional and instrumental support, and positive reevaluation.

The most common sources of support for nurses are family, close ones, and nursing colleagues. However, almost half of the nurses indicate a lack of support. Emotional support was the most expected and received type of support, followed by informational support.

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