Original Article

Investigation of Stress and Burnout Levels in Greek Nurses Working in Covid-19 Units / Clinics

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Abstract

Background: The pandemic COVID-19 has a significant psychological impact and poses a risk for high levels of stress and burnout in healthcare professionals, especially nurses.
Aim: The aim of this study is to investigate the levels of stress and burnout among Greek nurses working in COVID-19 units/clinics.
Methodology: A cross-sectional study was conducted with a sample of this study consisting of 102 nurses working in Covid-19 clinics/units. Snowball sampling was used. The research instrument used was a questionnaire, specifically the Expanded Nursing Stress Scale was used to assess nurses' stress and the Copenhagen Burnout Inventory was used to assess burnout.
Results: It was found that since the begging of pandemia, Greek nurses working in COVID-19 units/clinics have slightly high levels of stress, compared to their pre-epidemic Covid-19 work in various other units/clinics and the most stressful situations are contact with death, uncertainty about treatment outcome, stressful situations related to interactions with patients and their families and the workload. Greek nurses in these units/clinics, were also found to have high levels of burnout, than previously had. At the same time, this study found that there is a correlation between stress and burnout and that demographic characteristics are not related to stress and burnout levels of Greek nurses.
Conclusions: Given the high levels of stress and burnout, it seems appropriate to develop strategies to reduce these negative emotions in nurses and increase their psychological resilience and job satisfaction.

Key words: Burnout, Stress, Nurses, COVID-19

Background

The COVID-19 pandemic has eliminated and affected lives globally, leading to a new set of challenges across the world. The pandemic had led to an extreme psychosocial impact on people, especially healthcare professionals working on the frontline of the pandemic (Yildirim, Cicek, & Sanli, 2021). The pandemic has caused significant stress that poses risks to the mental health and well-being of nurses. Studies have shown that stress can cause mild to severe levels of psychosocial and mental health problems such as depression, anxiety, post-traumatic stress and loneliness (Arslan, 2020; Ceri & Cicek, 2021) and burnout. (Yildirim & Solmaz, 2020).

At the same time, burnout syndrome refers to a long-term experience of fatigue and a reduced level of enthusiasm and interest in work, which leads to a decrease in work efficiency (Maslach, Schaufeli, & Leiter,

2001). This is the result of excessive effort in the workplace and limited opportunities for recovery (Embriaco, Papazian, Kentish-Barnes, Pochard, & Azoulay, 2007). Studies have shown that highly stressful jobs are more likely to cause burnout (Embriaco et al., 2007) For nurses specifically, burnout can lead to less willingness to take on leadership roles, lower quality of healthcare, decreased patient satisfaction levels, increased levels of healthcare-associated infections, and higher mortality rates among patients (Dyrbye et al., 2019) Previous studies have further shown that nurses who suffer from burnout are more likely to be dissatisfied with their jobs and quit their jobs (Dyrbye et al., 2019).

As mentioned above, nurses are often prone to burnout, with the highest levels of burnout being found among nurses working in intensive care units (ICUs) (Elshaer, 2018). Known factors contributing to the high risk of burnout include intensive patient care, high mortality rates and inappropriate working conditions in terms of high workload combined with lack of time to adequately address patient needs (Bakker, Le Blanc, & Schaufeli, 2005; Embriaco et al., 2007). Consequently, nurses face stress levels beyond their capabilities, which can lead to burnout (Talaee et al., 2020).

Nursing is considered a difficult job, demanding and complex. The combination of high work demands and excessive responsibility and minimal authority has been identified as some of the main sources of job stress for nursing staff. Job stress can greatly affect the quality of life of nurses and the quality of care. Nursing is an interpersonal relationship process defined by interpersonal sensitivity and intimacy, including active communication and the application of professional knowledge and skills. Job stress can lead to a loss of empathy for patients and an increase in the frequency of errors, which is negatively related to quality of care (Masa'Deh, 2017).

Therefore, it is of utmost importance to study stress and burnout among nurses, especially in such a stressful situation with the current pandemic. Such knowledge can be used to protect and maintain the workforce while improving the quality of services provided to patients.

Purpose: The purpose of this study is to investigate the stress and burnout levels of Greek nurses working in COVID-19 units/clinics.

The research questions are:

1. What are the stress levels of nurses working in COVID- 19 units/clinics?
2. What are the burnout levels of nurses working in COVID-19 units/clinics?
3. What is the correlation of stress and burnout levels with their demographic characteristics?

Methodology

Sample: The sample of the present study consists of 102 nurses working in Covid-19 clinics/units of public sector hospitals throughout Greece. Regarding the sampling type, snowball sampling was used. This sampling is defined as a non-probability sampling method, in which samples have characteristics that are rarely found. It is a sampling method in which existing samples provide references for recruiting samples needed for a research study. There are some advantages to using avalanche sampling. Researchers can reach individuals in a particular population that would otherwise be difficult or impossible to reach, it is low cost and easy to implement (Babbie, 2018).

The initial sample of this study was nurses working in Covid units/clinics of the University General Hospital of Larissa, where the author worked and former fellow students of the author who worked in Covid units/clinics in other hospitals in Greece. All of them were given the Google Forms link with the questionnaire and then they forwarded the link to their colleagues. By this way the total sample of the study was collected.

Study questionnaires: In order to answer the research questions posed, a cross-sectional study was conducted. Cross-sectional studies involve data collected at a fixed time and are often used to estimate the prevalence of various diseases (Babbie, 2018). The use of questionnaires allows to collect data easily and in a short period of time from a sufficient sample, in addition, the statistical analysis of the resulting data is easier, while the anonymity of the participants is ensured (Babbie, 2018). The questionnaire consisted

of the following topics: demographic characteristics (gender, age, marital status, having children, educational level, years of experience, monthly income, job position, working hours), stress investigation, burnout investigation. For the last two themes, psychometric scales were used, the Expanded Nursing Stress Scale ((French, Lenton, Walters, & Eyles, 2000; Μουστάκα, 2010) and the Copenhagen Burnout Inventory Scale (Kristensen, Borritz, Villadsen, & Christensen, 2005; Papaefstathiou, Tsounis, Malliarou, & Sarafis, 2019).

The Expanded Nursing Stress Scale was used to assess nurses' stress. The scale was created by French and colleagues (2000) with the Cronbach alpha for the total scale 0.89 and has been weighted in Greek by Moustakas et al. (2010). It is a 57-item scale with nine subcategories: contact with death (7 questions with a score range of 0- 28), inadequate preparation for handling the emotional needs of patients and their families (3 questions with a score range of 0-12), discrimination (3 questions with a score range of 0-20), workload (9 questions with a score range of 0-36), uncertainty about the therapeutic outcome (9 questions with a score range of 0-36), conflicts with physicians (5 questions with a score range of 0-20), conflicts with colleagues (6 questions with a score range of 0-24), conflicts with supervisors (7 questions with a score range of 0-28), stressful situations related to interactions with patients and their families (8 questions with a score range of 0-32).

Each question is ranked on a 4-point Likert scale from 0 to 4 (0=Not applicable, 1=Not at all stressful, 2= A little stressful, 3= Quite stressful, 4= Extremely stressful). The higher the total score, the greater the stress. The total score for the 57 states can be calculated from the scale, and the score for each of the 9 factors can be calculated separately by adding the state scores to each factor (French et al., 2000; Μουστάκα, 2010).

The Copenhagen Burnout Inventory Scale was used to assess burnout among nurses. The scale was created by Kristensen and colleagues (2005) with the Cronbach's alphas for internal reliability are very high 0.85-0.87 and has been weighted in Greek by Papaefstathiou and colleagues (2019) with Cronbach's alpha index values surpassed 0.844. It consists of 19 questions and 3

subscales: personal burnout (6 questions), job burnout (7 questions), burnout related to patient interaction (6 questions). Each question is on a five-point Likert scale. For the subscale of personal burnout, the score is: Always= 100, Often= 75, Sometimes= 50, Rarely= 25, Never= 0. The total score is the average of the sub-question scores. For burnout, the first 3 questions are scored as follows: To a very high degree=100, To a high degree=75, So-and-so/relatively=50, To a low degree=25, To a very low degree=0. The next 4 questions are scored as follows: Always= 100, Often= 75, Sometimes= 50, Rarely= 25, Never= 0. The scoring is reversed for the last question. For burnout related to patient interaction, the first 4 questions are scored as follows: To a very high degree=100, To a high degree=75, So-and-so/relatively=50, To a low degree=25, To a very low degree=0. The next 2 questions are scored as follows: Always= 100, Often= 75, Sometimes= 50, Rarely= 25, Never= 0. The total score for each subscale and for the whole scale is derived from the average of the sum of the questions. The higher the score, the higher the burnout (Kristensen et al., 2005; Papaefstathiou et al., 2019).

Ethical and moral issues: In conducting this research work, the code of human rights and the ethical principles for human subjects' research, as clearly stated by the International Committee of Medical Journal Editors and the Declaration of Helsinki, were observed.

Regarding the process, the questionnaire was distributed via a link in Google Forms between February and March 2021. Participants were informed that to participate in the study they must work in a Covid unit/clinic, for the purpose of the questionnaire and their voluntary participation. It was clarified that the responses provided would be completely confidential due to the guarantee of their anonymity by Google Forms and would only be used in the context of a thesis. Permissions were obtained for the scales used.

Statistical analysis: Statistical analysis of the data was performed with IBM SPSS version 25. First, normality test was performed using Kolmogorov-Smirnoff test. It was found that the data did not follow a normal distribution (sig < 0.05), therefore non-parametric tests were used. Mann-Whitney tests were performed to investigate differences in stress

and burnout levels according to gender, having children under 18 years of age, work department, monthly income, job position and for working hours. In addition, Kruskal-Wallis tests were conducted to investigate differences in stress and burnout levels according to age, years of work, marital status, and educational level. In addition, Spearman correlations were performed to determine whether stress is related to burnout. Multivariate linear regression was performed. At the same time, the reliability of the Expanded Nursing Stress Scale and Copenhagen Burnout Inventory scales was also tested using Cronbach's alpha coefficient. It was found that both scales have high reliability. Specifically, for the Expanded Nursing Stress Scale it was found that $\alpha= 0.78$, and for the Copenhagen Burnout Inventory it was found that $\alpha= 0.84$.

Results

First, regarding the demographic characteristics of the participants, 89.2% (n=91) were female and 10.8% were male (n=11). The age of the participants ranged between 23 and 59 (M=38.51, SD=10.21). 32.4% (n=33) were unmarried, 58.8% (n=60) were married or cohabiting and 8.8% (n=9) were divorced. Also, 44.1% of the participants (n=45) had a child/children under 18 years old. In terms of educational level, 19.6% (n=20) were high school graduates, 41.2% (n=42) were Technological Education (TEI) graduates, 16.7% (n=17) were University graduates, 21.6% (n=22) held a postgraduate degree and 1% (n=1) held a PhD degree. In addition, 1% (n=1) had a monthly income of 0-600 euros, 85.3% (n=87) had 601-1200 euros, 10.8% (n=11) had 1201-1800 euros and 2.9% (n=3) had more than 1801 euros. 3.9% (n=4) were supervisors, 74.5% (n=76) were nurses, 15.7% (n=16) were nursing assistants, 3.9% (n=4) were A supervisors and 2% (n=2) were B supervisors. Participants' years of employment ranged between 0.5 and 37 (M=13.22, SD=9.73). Furthermore, 82.4% (n=84) worked morning, afternoon and evening shifts, while 10.8% (n=11) worked morning shift only, and 6.9% (n=7) worked both morning and evening shifts. Finally, 54.9% (n=56) worked in a COVID-19 clinic and 45.1% (n=46) in a COVID-19 ICU .

Regarding the stress of the participants, they were found to have slightly high stress levels (M=129.03, SD=37.20). More specifically, regarding the subscales of the Expanded Nursing Stress Scale, participants have high scores on contact with death (M=17.24, SD=5.18), and moderate scores on conflicts with physicians (M=11.01, SD=3.78), inadequate preparation for handling the emotional needs of patients and their families (M=6.59, SD=2.59), conflict with colleagues (M=11.90, SD=4.57), and conflict with supervisors (M=16.83, SD=6.30). However, they have high scores on uncertainty about treatment outcome (M=21.60, SD=7.42), stressful situations related to interactions with patients and their families (M=18.43, SD=5.98), and workload (M=21.38, SD=6.68), and low scores regarding discrimination (M=4.05, SD=3.61).It is therefore found that the most stressful situations are contact with death, uncertainty about treatment outcome, stressful situations related to interactions with patients and their families, and workload.

Regarding the participants' burnout, based on the Copenhagen Burnout Inventory, it was found that the participants have moderate levels of burnout (M=52.14, SD=26.71).Specifically, in terms of CBI subscales, participants were found to have slightly high levels of personal burnout (M=59.96, SD=7.10) and job burnout (M=56.27 SD=10.19) and low levels of burnout related to patient interaction (M=31.47, SD=13.23).

Subsequently, non-parametric tests were conducted to find associations between stress and burnout levels with demographic characteristics. Mann-Whitney tests were conducted to investigate differences in stress and burnout levels according to gender, having children under 18 years old, work department, monthly income, job position and working hours.

It was found that women (Mdn=53.86) have higher personal burnout than men (Mdn=32.00) as p=0.02. Also, women (Mdn=53.51) have higher burnout than men (Mdn=34.91) as p=0.04. Regarding having children under 18 years old, it was found that individuals who did not have children under 18 years old (Mdn=57.32) had greater

uncertainty about the treatment outcome compared to individuals who had children under 18 years old (Mdn=44.13) as p=0.02. Also, individuals who did not have children under 18 years (Mdn=57.32) had more stress about workload compared to individuals who had children under 18 years (Mdn=44.13) as p=0.02. Regarding job segment, monthly income, job position and working hours, no statistical significance was found at p < 0.05 for any variable.

In addition, Kruskal-Wallis tests were conducted to investigate differences in stress and burnout levels according to age, years of work, marital status, and educational level. It was found that with respect to age, years of work, and marital status there was no statistical significance at the p < 0.05 for any of the variables under consideration.

Regarding educational level, it was found that participants with postgraduate studies (Mdn = 64.38) considered conflicts with physicians more stressful, while those who graduated from higher education (Mdn = 43.88) considered them less stressful (p = 0.03). Also, postgraduate participants (Mdn=65.42) considered conflicts with colleagues more stressful, while TEI graduates (Mdn=39.26) considered them less stressful (p=0.03). Furthermore, participants with postgraduate studies (Mdn=66.85) considered uncertainty about the treatment outcome more stressful, while TEI graduates (Mdn=38.95) considered it less stressful (p=0.00). Also, University graduates (Mdn=65.91) considered workload more stressful in contrast to TEI graduates (Mdn=40.22) (p=0.00). Furthermore, it was found that participants with postgraduate studies (Mdn=63.42) have the highest stress and TEI graduates (Mdn=40.13) have the lowest stress (p=0.00).

At the same time, Spearman correlations were conducted to determine whether stress is related to burnout. It was found that conflict with physicians was positively and linearly related to burnout (r_s =0.181, p=0.002). Also, conflict with colleagues was positively and linearly related to personal burnout (r_s =0.294, p=0.003), job burnout (r_s =0.214, p=0.031), and total burnout (r_s =0.200, p=0.044). Conflict with supervisors was positively and linearly related to burnout (r_s =0.210, p=0.034). Furthermore, stressful situations related to interactions with patients and their families are positively and linearly related to burnout associated with interactions with patients (r_s =0.201, p=0.042) and to overall burnout (r_s =0.213, p=0.031).Workload was positively and linearly related to personal burnout (r_s =0.281, p=0.004). In addition, discrimination is positively and linearly related to personal burnout (r_s =0.262, p=0.008), job burnout (r_s =0.291, p=0.003) and total burnout (r_s =0.303, p=0.002). Furthermore, total stress was positively and linearly related to personal burnout (r_s =0.245, p=0.013) and job burnout (r_s =0.217, p=0.029). Finally, multiple linear regression was performed and it was found that burnout was a predictor of stress.

Discussion

This study found that Greek nurses have slightly high levels of stress and the most stressful situations are contact with death, uncertainty about treatment outcome, stressful situations related to interactions with patients and their families and workload. Greek nurses were also found to have high levels of burnout.

These findings are consistent with other research that has been conducted. The high stress levels of nurses working in COVID-19 units/clinics was also found by Salari and colleagues (Salari et al., 2020), who even found that the prevalence of stress among nurses is 45%. Zhang et al. (Zhang et al., 2020) found that nurses have a lot of stress, which is mainly related to the fear of transmitting COVID-19 to their families.

But also in Greece, several studies have found high levels of stress among nurses. Pappa and her colleagues (Pappa et al., 2021) found that the percentage of healthcare professionals with symptoms of moderate/severe depression, anxiety and traumatic stress was 30%, 25% and 33%, respectively. Burnout levels were particularly high with 65% of respondents reporting moderate/severe emotional exhaustion, 92% severe depersonalization, and 51% low/moderate scores on personal success. Also, Tsamakis et al. (Tsamakis et al., 2020) found high rates of perceived stress and Blekas and colleagues (Blekas et al., 2020) found high levels of post-traumatic stress.

Regarding burnout among nurses, a plethora of studies have found high levels of burnout. Jose, Dhandapani and Cyriac (Jose, Dhandapani, & Cyriac, 2020) found that nurses working in COVID-19 ICUs have severe burnout, emotional exhaustion and depersonalization. Khasne et al. (Khasne, Dhakulkar, Mahajan, & Kulkarni, 2020) found that the prevalence of personal burnout was 44.6%, work-related burnout was 26.9%, and more than half of the respondents (n=1,069, 52.8%) had pandemic-related burnout. Also, Lasalvia and colleagues (Lasalvia et al., 2021) found that 49.2% of nurses had emotional exhaustion, 46.9% had a diminished sense of personal success, and 29.7% had cynicism, and Azoulay and colleagues (Azoulay et al., 2020) found that 51% of nurses have burnout. High levels of stress and burnout were also found by Nishimura and colleagues. (Nishimura, Miyoshi, Hagiya, Kosaki, & Otsuka, 2021)

At the same time, this research found that there is a correlation between stress and burnout. This finding is in line with other research that has been conducted. (Dalatony, 2019; Gandi, Wai, Karick, & Dagona, 2011; Koutsimani, Montgomery, & Georganta, 2019; Syed, 2014)

Regarding the correlation between demographic characteristics and levels of stress and burnout, women were found to have higher levels of personal burnout and overall burnout than men. This finding is confirmed by the research of Blekas and colleagues (Blekas et al., 2020) and Khasne and colleagues. (Khasne et al., 2020) However, contrary to this research, Blekas and colleagues (Blekas et al., 2020) found that women have higher levels of stress than men. This variation may have occurred due to the research being conducted in a different country and with a smaller sample.

In addition, it was found that people who did not have children under 18 years of age had more uncertainty about the treatment outcome and more stress about the workload compared to people who had children under 18 years of age. This finding contradicts research by Hendy and colleagues (Hendy, Abozeid, Sallam, Abboud Abdel Fattah, & Ahmed Abdelkader Reshia, 2020) who found that nurses with children had greater stress. Of course, Cañadas-De la Fuente and colleagues (Cañadas-De la Fuente, 2018) found that nurses who did not have children had higher burnout. This may explain why in the present study nurses without children had greater stress related to workload.

Furthermore, it was found that the participants with postgraduate studies have the highest stress and the lowest stress among graduates of TEI. This finding is not in line with other similar studies that have been conducted, which have found that the educational level of nurses is not related to stress. (Almazan, Albougami, & Alamri, 2019; Saberinia et al., 2020) Also, contrary to the findings of the present study, others have found that burnout is related to educational level, and in particular, it has been found that the higher the educational level, the higher the burnout. (Aydin Sayilan, 2021; Ferry, Wereski, Strachan, & Mills, 2021) Therefore, since few existing studies have correlated educational level and stress among nurses, and since it has been found that higher educational level is associated with greater burnout, this may explain this variation.

Finally, unlike the present study, Zhang and colleagues (Zhang et al., 2020) found that nurses working more shifts have higher levels of burnout. However, neither Bakhtom, Nassiri and Borgheipour (Bakhtom, 2019) found a correlation between shift work and burnout.

Limitations of the Study: This research also had some limitations. The sample is small and does not reflect the stress and burnout levels of all Greek nurses. Also, it was not studied whether the participants were ill with COVID-19, nor were other variables included, for example stress, sleep quality and job satisfaction.

Conclusions and Proposals for the Application of the Results in Clinical Practice: In conclusion, it was found that Greek nurses have slightly high levels of stress and high levels of burnout. Therefore, it seems appropriate to develop strategies to reduce these negative feelings in nurses and increase their psychological resilience and job satisfaction.

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