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(RESEARCH ARTICLE)

The negative impact of pandemic COVID 19 on health professionals in primary, secondary and tertiary health care in Greece-the survey

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Abstract

A sample survey was carried out in 2022 among health professionals of the health structures of seven regions in the context of the new corona pandemic.

The research concerned the fatigue experienced by health professionals of many specialties within public health structures from 2020 to 2022, from the moment of the appearance of the first case, until the waves of the disease subside.

Globally, the descriptions of the conditions that prevailed immediately after the outbreak of the disease in many countries were terrifying, since its invasion caused strong negative feelings and reactions.

The fear of the unknown pathogenic entity and the extreme symptoms it caused manage to synthesize a negative psychology in the society and a negatively charged climate among health professionals, as a result of which many were led to absolute despair.

Anxiety, worry, fear of the unknown characteristics of the disease, of the complications, symptoms and consequences, as well as the large volume of patients who were admitted to the hospitals were the reasons that the health staff were intensely tested, emotionally and physically, reaching overwork and exhaustion.

The research tool was a questionnaire that resulted from the synthesis of the two others questionnaire-tools that focus on the study of occupational burnout of health professionals, the DASS 21 and the CBI.

The results showed that health professionals in Greece experienced intense negative emotions such as anxiety and worry, at a high level, but not very high, as happened in other countries around the world hit by COVID 19.

Keywords: Health Professionals; Social Workers; Research; Anxiety; Worry; Fear; Burnout, COVID-19; Epidemic; Protective Measures; Resilience; Primary/Secondary/Tertiary Health Care; Vaccination; Resignation; Suicide

1. Introduction

The infectious respiratory disease, which severely affected almost the entire planet at the end of 2019, was named by the World Health Organization COVID 19 and crossed the Greek border at the end of February 2020. China first reported

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to the World Health Organization about the development of cases of pneumonia of unknown etiology on December 31, 2019, as Sumit Kumar [2] noticed and declared a pandemic on March 11, 2020 (Sumit Kumar 2020). This was the milestone of the beginning of the spread and the care of patients with the new coronavirus. It was found that it was a virus that strikes the respiratory system and belongs to the category of coronaviruses.

Many researchers, observing the magnitude of the health crisis caused both during the outbreak and during the waves of spread of the disease, proceeded to organized studies in order to collect data that will help the scientific community in health crises, in the long term.

This paper concerns the stress and burnout experienced by health professionals in primary, secondary and tertiary health care structures, on the occasion of the onslaught of the new infectious disease, which knocked on the door of the global community at the end of 2019. As Fayeza Alameri [3] observed during the pandemic, all modes of healthcare faced similar obstacles, such as limited availability of special staff and the possibility of transmitting SARS-CoV-2 between patients and staff. Managing the unpredictable scenario of the COVID-19 pandemic posed an unprecedented challenge for healthcare leadership, which had to act quickly to structure and deliver the key resources and personnel needed to manage throughout this health crisis (Fayeza Alameri et al.2022).

No matter how well prepared the health system was, the onset of the disease, combined with its rapid spread, brought about many changes in the organization and operation of nursing units. These changes also brought changes in the way health professionals work both during the first wave of the spread and during the three other waves of dispersion and transmission that followed. The consequence of this was fatigue on their part and exhaustion, physical and psychological.

The exhaustion, or burnout, of health professionals is a condition that is described with concepts and emotions that carry a negative sign. Such are anxiety, lack of joy, the existence of unpleasant thoughts, anxiety for the health of themselves and members of their families, anxiety to avoid the transmission of the disease, constant effort to take appropriate measures for self-protection and protection of family members, bad dreams, morning awakening followed by muscle pain, frequent headaches, mental fatigue and questions about the duration of this "evil". Also, the feeling of intense physical and mental pressure, the fear of avoiding transmission of the disease from patient to patient through tools and other objects, through the respiratory tract or mucous membranes, the painful experiences of hospitalization and care in intensive care units with severe cases and the feeling of deep sadness with the counting of losses or worsening of cases. As recorded [4] in the 2021 Community Care Quality Committee report in June 2021 a report by the Samaritans June of 2021 identified health workers as one of five groups whose risk of suicide may worsen as a result of the pandemic. The report outlined how healthcare workers faced feelings of stress, trauma and mental fatigue from their work during the pandemic, alongside the impact of being surrounded by serious illness and death at unprecedented levels, while often struggling for support and resources (Care Quality Commission 2022).

Physical and mental stress are risk factors for the development of serious health problems for each health professional, but at the same time according to Negin Talee [5], it is associated with the frequency of medical errors and the quality of health services provided (Negin Talee et al 2022). The health professional that experiences such experiences in his daily life is victimized. He also becomes a "victim" of the given situation, and as Sumit Kumar writes [2], another cause and effect of burnout is the 'Second Victim Syndrome' which involves emotional trauma suffered by health workers due to adverse events, usually leads to poor patient outcomes, and the doctor becomes the second victim (Sumit Kumar 2020). According to the Karasek and Theorell Work Requirements Control Support Model, there is a relationship between cardiovascular risk factors and burnout, which is mediated by life and work stressors. Occupational stress and burnout can cause persistent symptoms of fatigue, as well as an increased risk of cardiovascular disease. Fayeza Alameri [3] underlined that in addition, overall occupational burden has been linked to cardiovascular risk in physicians (Fayeza Alameri et al.2022). And it's not just the doctor who takes care of the COVID patient, of course. It is both the nurse and the physiotherapist and the social worker and the health visitor who are by his side. Therefore, everyone who is in these professional categories and worked very closely with the COVID patient found himself or was at risk of finding himself in the role of the second victim. The price of wear and tear and exhaustion can be the same for doctors and nurses, but also for paramedical professions such as the social worker, who deals with the proper functioning of the patient within the nursing structure, within his family environment, within the wider society, who experiences feelings of intense anxiety, isolation, emotional oppression, lack of communication with family members, etc. As characteristically reported by Megan R Holmes [6] social workers are in a unique position as they experience the stress of the COVID 19 pandemic in their professional lives, providing services to clients who often find themselves in situations of crisis or adversity, while at the same time experiencing the same trauma in their personal lives (Megan R Holmes 2021). It is possible that social workers themselves are in the same or similar mental state and are charged with the need to support and support patients for the same reason!

As Negin Talee supported [5] given the fact of the outbreak of the epidemic disease, the unforeseen conditions and the extensive workload experienced by health professionals due to the pandemic disease (Negin Talee et al 2022), in our country, the motivation was given to investigate their situation.

Common ground of the findings is physical fatigue, psychological fatigue, boredom, frustration, lack of self-interest and other related negative emotions.

The most intense emotions and severe psychological exhaustion came for most of them from the anxiety of contracting the disease, the anxiety of transmission from the health professional himself e.g. nurse or doctor to the non-COVID patient, the anxiety to avoid transmission to his family members, the anxiety about his personal abilities to respond to the needs of patients, the anxiety about the unknown of this virus, etc. The extent of human body infestation, the speed of infection, the speed of death, the anxiety about the duration of the pandemic, the anxiety to find ways to deal with it. The extremely severe symptoms of the disease, the need for many hours or even days for sedation of patients in the Intensive Care Units, the multiple complications and side effects are just some of the causes that exacerbated the negative emotional state of the health staff. The frequent natural outcome in death as a natural consequence of the total infection of the human body by the severity of the virus, combined with the lack of a suitable antidote for the disease are important causes of mental distress, anxious behavior, emotional disorders with intense fear and deep sadness.

The literature review identified hundreds of studies conducted from the beginning of the pandemic in some countries 2020 until 2022 and capture with the help of research tools the magnitudes of worry, anxiety, depersonalization, anxiety, frustration and despair and symptoms of post-traumatic stress disorder that according to Graziella Orru [7] include avoidance, overstimulation and insomnia (Graziella Orru 2021). Such tools are the MBI, CBI, DASS 21 questionnaires and others that delve into the psychological introspection of health workers during the pandemic. Burnout has been shown to exist across the spectrum of health professionals, led by doctors and nurses. In many cases it is at very high levels. Burnout syndrome can be traced into eleven symptoms, as Maria Ulfa noticed [8], including fatigue and loss of energy accompanied by exhaustion (Maria Ulfa 2022).

The causes that cause it are those that perhaps determine the rate of burnout. In tertiary hospitals and generally in units with a large number of COVID patients, anxiety, stress, fear, psychological fatigue and physical exhaustion seem to be higher than secondary care hospitals or with fewer COVID beds, in general. Research conducted at a tertiary hospital in Lisbon, Portugal. During the research emotional exhaustion, depersonalization and personal fulfillment were measured by the Maslach Burnout Inventory. Linear regression analyses were performed to investigate the relationships between burnout dimensions and sociodemographic variables. The survey involved 106 people (95% response rate). As the writer Helena Sofia Antio supported [9] high emotional exhaustion and depersonalization were reported by 33.0% and 18.4% of participants, respectively. 21.4% reported low personal achievement. Work tenure was associated with depersonalization and personal fulfillment (Helena Sofia Antio et al 2022). Also, the state of the organization, the inadequacy of supplies and the management of inpatient situations seem to have played a serious role in the daily wear and tear of health personnel.

It is important to mention that the pandemic was dealt with by health structures during particularly difficult times. The lack of appropriate and sufficient medical equipment e.g. ventilators, COVID beds, ICU beds, understaffing, lack of personal protective equipment, were conditions that made the situation in our country's hospitals very difficult. Also, the overtime caused by the COVID era is also due to the lack of staff, but vice versa, the lack of staff caused overtime from the COVID era onwards.

Similar situations are experienced by other countries whose health systems seemed to have many shortcomings. And certainly, the damage was caused not only during the recovery of patients, but also during the prevention of the disease. Let us not forget that the vaccination was also an intense and time-consuming process, burdening all levels of health, with primary health care being a pioneer. A survey conducted in China found that 20.8% of staff involved with vaccination had experienced burnout. Wenwen Gu's study referred [10] that the vaccination staff experienced a high degree of emotional exhaustion, cynicism and low personal satisfaction. Professional status and engagement time to prevent and manage COVID were tied to personal fulfillment (Wenwen Gu et al 2023). In many countries, health professionals, especially those in the nursing category, as at some point of the Care Quality Commission's report it is mentioned, participated in additional roles voluntarily during the pandemic – for example, they covered COVID-19 vaccination centers on days off. While admirable, there were potential negative impacts on staff wellbeing that should be taken seriously [4] (Care Quality Commission 2022).

It is therefore a given that there has been significant physical and psychological deterioration of health professionals in the health structures that were actively involved in dealing with the pandemic. Let us not forget that the treatment was based on three areas: treatment, diagnosis and prevention.

The order of wording is proportional to the facts. First patients were admitted for treatment in tertiary and secondary hospitals, then gradually diagnosis passed in addition to the Emergency Department COVID and in Health Centers and then the process of prevention through vaccination occurred. Each stage concealed its own rate of burnout among health workers.

2. Research methodology

The concept of burnout dominated the research of many scholars in pro-COVID eras. Determining characteristics for the definition of burnout have been given by many of them. Almost everyone agrees on a common point, that meaning has been defined as a symptom of emotional exhaustion, depersonalization and a sense of low personal success that leads to reduced effectiveness at work...it seems to occur mainly in professions that involve interaction with people, such as doctors, nurses, social workers and teachers, as noted by Stefan de Hert [11] (Stefan de Hert. 2020), while it is underlined by the same researcher that the symptomatology off occupational burnout seems to be rather complicated.

The aim of the research is to detect the signs of burnout during the pandemic in Greek health professionals working in public health structures.

In order to achieve the research, an investigative tool was needed that would be able to detect, as reliably as possible, the emotional burden of these professionals and to attribute the relationship between their profession and this burden in emergency conditions, as well as natural disaster.

At the research level, several tools are available to detect emotions related to professional burnout. In order to better assess the physical and emotional symptoms in this work, two internationally recognized and standardized questionnaires were used as tools, which concern the signs of burnout. The two questionnaires were consolidated and became one to which demographic questions were added. There is no personal data in the questionnaire that was created and the research that was conducted was done with all the necessary precautions to protect personal data.

This is the DASS21 (Depression Anxiety Stress Scale 21) questionnaire and a part of the Copenhagen Burnout Inventory questionnaire, the work-related burnout section. A synthesis was made of these and the formation of a new, unified questionnaire resulted. The questionnaire with which the research was conducted consists of three parts. First, from the demographic questions section (i.e. gender, occupation, employment agency, etc.). Then, the second section, consisting of twenty-one questions, is the questionnaire used to measure anxiety and burnout, the DASS-21 (Depression, Anxiety and Stress Scale-21). This particular tool consists of three subscales, each consisting of seven questions [5] (Negin Talee et al 2022). As for the third section, a subgroup, work-related burnout, from the CBI (Copenhagen Burnout Inventory) questionnaire was used, i.e. seven questions for the assessment of occupational burnout in healthcare professionals.

The aim is to highlight the burnout of health professionals during a pandemic. In more detail: The Dass21 scale as Brown supported [12](Brown, Chorpita, Korotisch & Barlow 1997) is a shortened form of the 42-question questionnaire developed by Lovibond & Lovibond. This scale has been standardized for a Greek audience by Pezirkianidis [13] and his colleagues, while its translation was done by Professor Lyrakou's team. It has been used in the works of Greek scholars and its reliability and validity have been proven. Such studies are diploma theses in some Postgraduate Programs such as the ones mentioned below:

- "Emotional Memory in Patients with Multiple Sclerosis", Chryssi Lafi, Diploma Thesis, P.M.S. "Applied Clinical Neuropsychology", Aristotle University of Thessaloniki [14].
- "Elements of Attention Deficit Hyperactivity Disorder in Adults and Internet Use" Filiou Areti-Irini, Diploma Thesis-University of Macedonia, Thessaloniki 2020 [15]
- "Effect of Hops Extract HOPs on stress and anxiety levels in adults" Christou Emilia-Varvara, Postgraduate Thesis at the M.P.S. "Applied Dietetics-Nutrition" Athens, June 2016 [16].

The interest in using the DASS 21 scale lies in the total score, which essentially assesses the negative emotional mood of the respondents. It consists of three subscales, each consisting of 7 questions. The Depression scale assesses negative emotions such as discomfort, hopelessness and a tendency to devalue life. The anxiety rating scale "records" the arousal

of the autonomic nervous system and the existence of anxiety as an existing state, while the stress scale detects increased arousal and irritability tendencies as well as difficulty relaxing. It is rated based on a Likert-type 4-point scale. It starts from 0 (Does not apply to me at all) to 3 (Applies to me a lot or most of the time).

The second questionnaire used is a subscale of the Copenhagen Burnout Inventory, work-related burnout. The main questionnaire was designed to meet research needs not only on the prevalence and contribution of burnout, but also on the risk of burnout. The main core of the questionnaire is fatigue and exhaustion. The team that developed it, regarding the work-related burnout subscale, has defined it as the degree of physical and psychological fatigue and exhaustion, perceived by the individual as being related to their work. In formulating this definition, the group of developers emphasizes the focus on the individual's own attribution of symptoms to their work. Tage S. Kristensen [17] underlined that the dimension of work-related burnout is based on how people perceive their own psychological and physical symptoms (Tage S. Kristensen et all, 2005).

The research questionnaire is a "match" precisely because the goal is to investigate fatigue and perceived physical and mental exhaustion of healthcare professionals. Therefore, it may be a good combination for the best possible recording and capturing of feelings of anxiety and exhaustion. The questions in both the first and second questionnaires constitute, in the researcher's opinion, a new tool for better capturing the psycho-emotional state of healthcare professionals. It is a tool that more closely approaches the stressful emotion, which exhausts the soul and body.

The first two questionnaires have been used many times in research on burnout among healthcare professionals in periods of "normalcy," i.e., pro-COVID times. However, research has also been conducted that focuses on the effects of the COVID outbreak and the pandemic it caused. Specifically, in 2022, a Negin Talee's study [5] was published online entitled "Stress and burnout in health care workers during COVID-19 pandemic: validation of a questionnaire" [5](Negin Talee et all, 2022). Similarly, studies have also been conducted with only one of the two questionnaires. For example, with the Copenhagen Burnout Inventory in the article "Burnout among Healthcare Workers during COVID 19 Pandemic in India: Results of a Questionnaire-based Survey" [18] (Ruchira W khasne et all. 2020) and "Prevalence and correlates of stress and burnout among U.S. healthcare workers during the COVID-19 pandemic: A national cross-sectional survey study" [19] (Kriti Prasad et all 2021).

Many studies have been conducted with the DASS 21, including the detection of the mental state of health professionals, and this questionnaire has been used in conjunction with other research tools to determine their professional burnout. Such studies are, for example, the study [20] "Resilience and stress in frontline social workers during the COVID-19 pandemic in Singapore" written by Boon Kheng Seng et all (2021) Another tool, the MBI (Maslach Burnout Inventory), has been used in many studies to measure burnout. This tool has been used in studies both before and during the pandemic. As an exploratory tool, Jeroen HM Kleijweg [21] believes that the practical implication is that the MBI should not be used alone as a diagnostic tool in a patient population, due to the high likelihood of overdiagnosis of burnout (Jeroen HM Kleijweg et all, 2021). It is also considered by Kelly Williamson [22] as ''the gold standard" for measuring burnout, depersonalization, and personal accomplishment (Kelly Williamson et all, 2018). And as another researcher, Chung-Ying Lin, [23] adds that it has good psychometric properties for accurately assessing burnout among health professionals across the three dimensions of emotional exhaustion, personal accomplishment, and depersonalization (Chung-Ying Lin et all, 2022).

While these tools seem to have much in common, they differ significantly in their exact objectives. Both investigate burnout, but highlighting different parameters. As Efstathios Papaefstathiou [24] characteristically wrote about the CBI, in 2019, calculates a) personal involvement b) work involvement and c) customer involvement in burnout. Personal exhaustion refers to both physical and psychological characteristics that are measured in a person during the day, e.g. How often do you feel physically exhausted?? (Efstathios Papaefstathiou et al 2019). Therefore, it is based on three dominant areas: a) personal exhaustion, b) work-related exhaustion and c) patient-centered exhaustion. The reason, therefore, that the CBI questionnaire was preferred in this work is that exhaustion is measured through the prism of both personal and work-related wear and tear, but also the service-providing relationship, i.e. the provider, the caregiver and the cared for, i.e. the service recipient.

In detail, the first questionnaire (DASS 21) is divided into three subscales that focus on the overall assessment of the emotional state of healthcare professionals. The first subscale is the Depression Scale, the second subscale is the Stress Scale, and the third is the Anxiety Scale.

2.1. More specifically, the Depression subscale includes the following seven questions:

- I could not seem to experience any positive feelings at all

- I found it difficult to work up the initiative to do things
- I felt that I had nothing to look forward to
- I felt down-hearted and blue
- I was unable to become enthusiastic about anything
- I felt that I was n't worth much as a person
- I felt that life was meaningless

The Stress subscale includes the following questions:

- I found it hard to wind down
- I tended to over-react to situations
- I felt that I was using a lot of nervous energy
- I found myself getting agitated
- I found it difficult to relax
- I was tolerant of anything that kept me from getting on with what I was doing
- I felt that I was rather touchy

2.2. And the Anxiety subscale includes the questions:

- I was aware of dryness of my mouth
- I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)
- I experienced trembling (e.g. in the hands)
- I was worried about situations in which I might panic and make a fool of myself
- I felt I was close to panic
- I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)
- I felt scared without any good reason

Common findings include physical fatigue, psychological fatigue, boredom, frustration, lack of interest in oneself, and other related negative emotions.

The difference between these and the findings of studies that have been conducted so far on the correlation between the spread of the new coronavirus and the burnout of healthcare professionals is that some negative emotions are also present, but they differ from the anxiety and distress experienced by healthcare professionals in normal times, i.e. without the impact of pandemic situations and natural disasters. These are the anxiety of contracting the disease, the anxiety of transmission from the health professional himself, e.g. a nurse or doctor to the non-COVID patient, the anxiety of avoiding transmission to his family members, the anxiety of his personal ability to respond to the needs of patients, the anxiety of the unknown of this virus, i.e. the extent of the attack on the human body, the speed of infection, the speed of the onset of death, the anxiety of the duration of the pandemic, the anxiety of finding ways to deal with it. It is very difficult for a healthcare professional to distance themselves and think while maintaining balance in their mental world, when their experiences- especially in the early days-in COVID clinics and COVID ICUs were only negative. The severe symptoms, the heavy sedation, the constant complications and death compose an extremely difficult scenario that emotionally burdens them with pessimism, anxiety, disappointment and fear. This directly causes their emotional vulnerability and weakness, which, in conjunction with social distancing, intensifies the feeling of widespread disappointment. At that point, as Stefan de Hert [11] comments, when people see no way out of this situation, they become resigned and indifferent (Stefan de Hert 2020).

In this specific study, the emotions identified are: fear of the unknown, intense anxiety and intense worry-especially in the early stages, disappointment and lack of joy.

3. Sampling-disposal of questionnaires

For the best and most formal compliance with the procedure, a request was submitted to the Scientific Council of the 6th Ministry of Health in order to obtain permission to conduct the research in Primary Health Care structures, at an initial stage. Primarily, the structures included in the research were those that were designated in early 2020 as "COVID 19 structures" and were directly involved in the diagnosis, referral or monitoring of patients with the new respiratory disease. Subsequently, after permission was granted by the Scientific Council, the researcher contacted either the

administrative staff of each Health Center or the scientific managers by telephone in order to inform them about the conduct of the research, its purpose and the method of collecting the responses to the questionnaire. The responses were collected by sending the link to the responsible administrative employee of each Health Center, who then forwarded the questionnaire link via email to the email addresses of the health professionals. As mentioned above, the questionnaire does not contain personal data and information, and thus in many health centers the process went smoothly. In hospitals, the process followed was almost the same as in health centers. The researcher submitted a request to the Departments of Education and Research. Subsequently, the request went through the scientific councils of the hospitals and approval was issued by each institution. In the same way, as in health centers, nursing service executives, either executives of the Education and Research offices or the secretaries of the Scientific Councils took over and sent the link to the questionnaire to health professionals via electronic addresses.

In the first stage, the research was conducted in structures of the 6th Ministry of Health. Subsequently, the team of collaborators deemed it appropriate to proceed with the research in more structures of the country in order to obtain conclusions from health professionals in other areas where the organization and treatment of patients with COVID-19 was not as methodical as within the framework of the 6th Ministry of Health. The aim was to investigate both the physical and mental state of healthcare professionals who faced thousands of cases, especially in areas where there was a shortage of medical and nursing staff, as well as shortages in ICU beds and simple beds for healthcare services to citizens.

Regarding the distribution of questionnaires to hospitals, the relevant requests were submitted, accompanied by the documents required for each hospital. The positive thing was that the Health Regions gave approval for the Health Centers relatively faster compared to the same process required by hospitals.

A total of 288 questionnaires were collected.

Regarding the participants, 78.2% were women and 21.8% were men. The largest percentage was doctors (50.2%) and then nurses (24.6%) and the rest belonged to other specialties. Regarding the analysis of the DASS 21 questionnaire:

The following data apply to the Depression subscale:

A significant percentage of participants 32.4% responded that they could not experience any positive feeling for a short period of time, while 16% of them responded that they could not experience any positive feeling for a longer period of time. If we consider that the onset of the pandemic occurred in three major waves and there were two long periods of social isolation, it becomes clear why this negative mental state arises both during the initial period, when the disease broke out in Greece, and for some time later, when there was no recession.

37.2% of participants reported difficulty in taking the initiative to do some things for a short period of time, while 17.4% stated that they had difficulty for a much longer period of time.

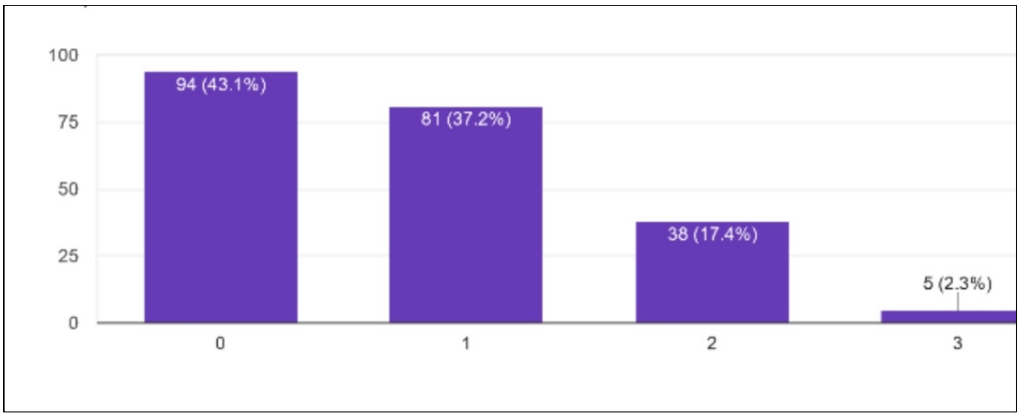

Figure 1 I found it difficult to work up the initiative to do things

A percentage of respondents, 28.1%, initially felt that they had nothing positive to look forward to, while 17.5% felt the same for a longer period of time.

As in other studies that dealt with the negative emotions experienced by healthcare professionals during the outbreak of the disease, frustration and melancholy took the top positions, so in this study too, respondents answered that in the first months they felt melancholy and frustration (33.9%). Of course, there are also those who experienced these two emotions more intensely and for a longer period of time (25.7%).

These responses are consistent with another consequence, related to the lack of motivation to make participants feel excited. 28.6% admitted that they felt that nothing could arouse feelings of excitement in them at the beginning of the pandemic. The same was felt by 18.9% of respondents for a longer period.

A similar emotional state was found in 15% of healthcare professionals who participated in the survey and stated that they felt they were not worth much as individuals, an indication of depersonalization that is also found in other similar surveys. While a similar percentage of those who stated that they felt that life had no meaning (14.7%).

In the anxiety subscale, questions are related to intense anxiety experienced by participating healthcare professionals. For example, 41.1% stated that they could not calm themselves down for a period of time, while 24.2% stated that they felt this way for a considerable period of time.

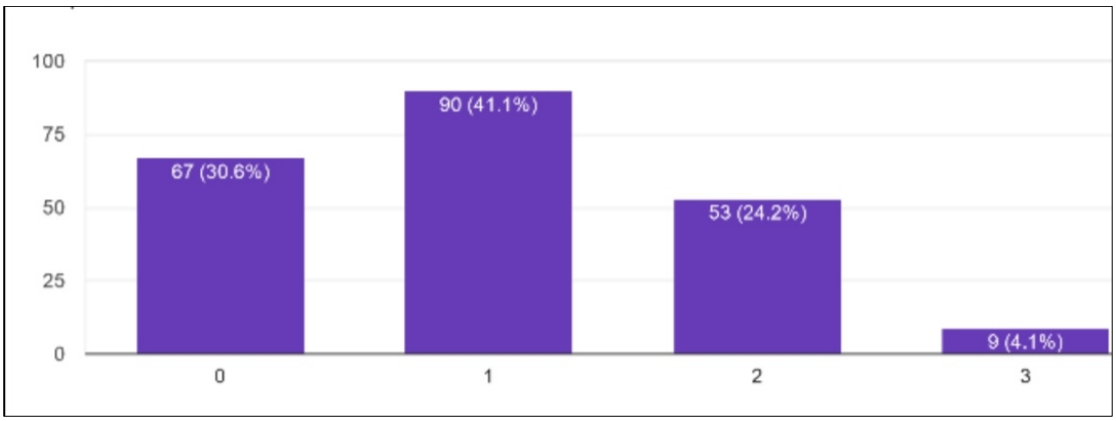

Figure 2 I found it hard to wind down

They also tended to overreact to situations they encountered (39.4% of respondents), and 18.8% overreacted particularly overly and for a longer period of time.

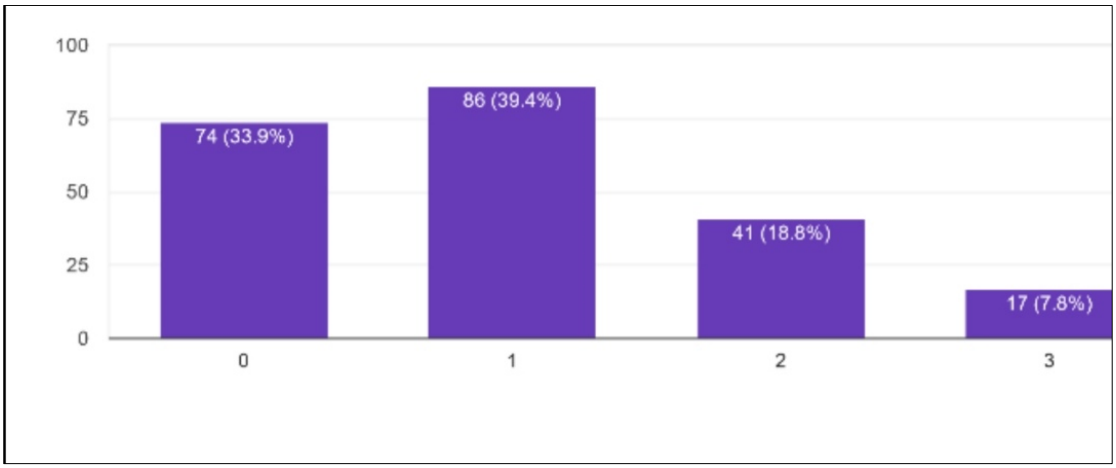

Figure 3 I tended to over react to situations

The percentage of those who admitted to feeling nervous often (38.7%) is similar, while 22.6% often felt nervous more than in the first few months.

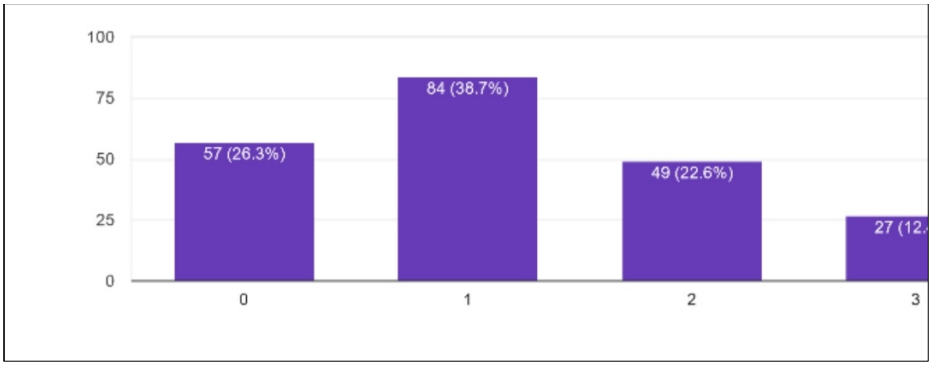

Figure 4 I was using a lot of nervous energy

Nervousness and exaggerated reactions show the mental state that health professionals in our country, as well as in other countries that were faced with the deadly coronavirus COVID 19, had reached. The majority of them found themselves getting agitated by 41.6%.

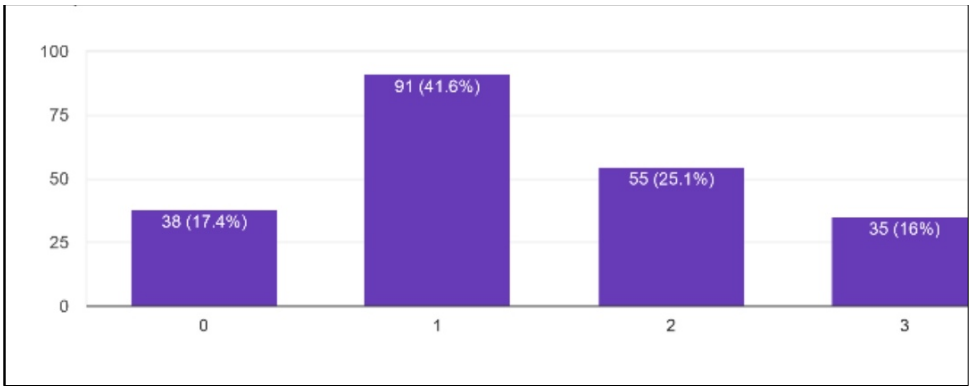

Figure 5 I found myself getting agitated

Among the negative emotions they experienced, 34.4% admitted that they could not tolerate anything that kept them from continuing with what they were doing, and 17% could not show such tolerance for several months.

Another mental state that is encountered as a symptom of burnout is irritability, which was found to have high rates in this study. This means that to the question "I felt that I was rather touchy" 42.2% of respondents answered positively for a few months and 19.7% for several months.

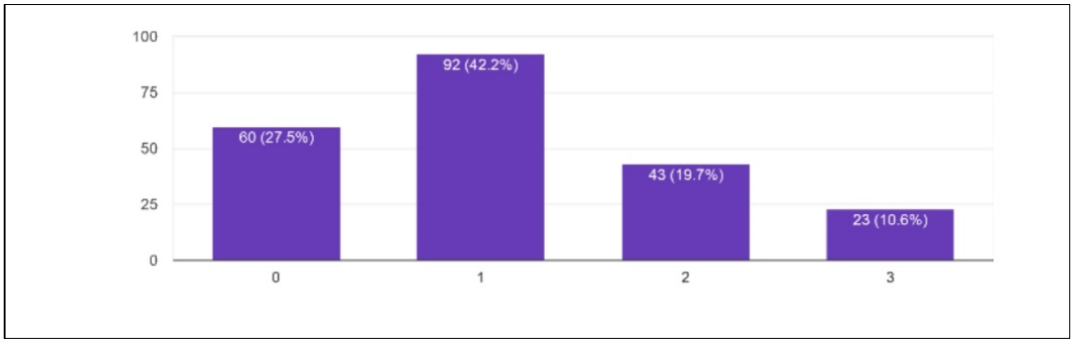

Figure 6 I felt I was rather touchy

The anxiety subscale includes questions in which the involvement of physical elements is strongly evident.

Professional fatigue and burnout are directly related to many physical symptoms such as the feeling of dry mouth. When asked "I felt my mouth dry," 21.9% of healthcare professionals who participated in the survey responded that they experienced it and it affected them a little, while 13.7% had it as a physical symptom for quite some time.

Participants were also asked about difficulty breathing with various manifestations, e.g. excessively rapid breathing, shortness of breath, etc. Indeed, a portion of respondents (23.3%) experienced such breathing difficulties at the beginning of the pandemic and 9.1% for some time afterward.

At the same time, some professionals were found to have felt a tremor, e.g. in their hands (18.4%), while 30.7% expressed concern about situations in which they could panic and look foolish to others. This percentage is also consistent with the percentage of those who felt very close to panic (30.1%).

Of course, the feeling of trembling and the feeling that it is very close to panic is understandable, when fear prevails as an emotion. To the question "I felt scared for no reason", 41.5% of the participants answered positively, that they were touched by the feeling of fear for a while, while 14.7% touched them more. That is, if one examines it as a whole, one will find that 56.2% of the health professionals experienced fear for no reason, some less and some more.

Regarding the questions of the work-related subgroup of the CBI questionnaire, the following were found:

Participants were asked if they considered their job emotionally draining and 40.6% of them considered their job emotionally draining to a high level, while 20.5% considered it to a very high level. They were also asked if they felt exhausted because of their job. 34.2% answered to a high level and 19.2% to a very high level.

Among other things, it is important to know whether their work frustrates them and 14.6% answered at a high level, 6.8% at a very high level and 23.3% approximately. They were also asked if they feel exhausted at the end of work and 42.9% stated often, 37% sometimes and 9.1% always.

To a similar question, i.e. whether they are exhausted in the morning at the thought of another day at work, 26.5% responded that they often feel this way and 32% sometimes.

Regarding whether they feel that every hour at work is tiring for them, 20.5% often felt this way and 35.2% sometimes.

And finally, they were asked whether they have enough energy for their family or friends during their free time. The response rates showed that 35.6% often have enough energy for their own people, 34.2% only sometimes and 14.6% rarely.

4. Discussion

In general, this research shows that healthcare professionals in Greece experienced negative emotions accompanied by physical fatigue. Also, whatever they experienced was at a high level, not at a very high level, as in foreign countries. And the intense emotions did not last as long as in other countries, as for many they are noted at the beginning.

If we add up the percentages with the highest values per question in this survey, it will be found that the percentage of healthcare professionals who experienced the range of negative emotions is remarkable.

It is noteworthy that the majority of participants could not experience any positive emotion (48.4% in total, i.e. 32.4% and 16%) for a short or longer period of time. If we continue to evaluate the results for each question with the same line of thought, we will find that real feelings of deep sadness, intense anxiety and intense worry had occupied almost half of the population of healthcare professionals for a considerable period of time. This explains why a significant portion of them had nothing important to look forward to while experiencing the pain, anguish and fear of patients.

The inability to take initiative or even make decisions during a period when social distancing measures were mandatory caused many difficulties in managing professional and personal affairs. It is no coincidence that numerous surgical procedures were postponed and carried out much later, in order to avoid the transmission of coronavirus to vulnerable post-operative patients.

Melancholy and disappointment are a common point of reference for all health professionals who fell in the battle of timely and correct diagnosis, especially in the early days, in all countries hit by the disease. And even more so, for those who experienced the image of death in the very first twenty-four hours of their patients' attack, without knowing what it is, how it appears and how it is treated.

It is therefore normal, when such an atmosphere exists, for a large number of doctors, nurses, social workers and other professionals to feel worthless as individuals and that life has no meaning. Considering that the psychological syndrome of burnout according to Zbigniew Izdebski [25] includes three dimensions: emotional exhaustion, depersonalization and a reduced sense of personal fulfillment, according to the Revision of the International Classification of Diseases (ICD-11) (Zbigniew Izdebski et. al 2023), it seems that low self-esteem and low self-image are related to the depletion of emotional resources of health professionals who find themselves in such a psychological state. Stefan de Heart wrote [11] that therefore, alertness to the phenomenon with early recognition combined with the development of appropriate personal and organizational coping strategies is essential to address this significant problem in modern healthcare (Stefan de Heart 2020).

In this condition, it is expected that there will be health professionals who often found themselves unable to calm down. Therefore, it is reasonable that most had a tendency to overreact to the situations they faced and often felt nervous and found it difficult to relax. The discomfort and anxiety about all that was happening without knowing the "why" and the "how" caused many significant discomfort. The percentage of 41.6% who found themselves getting agitated was significant. This shows a form of reaction to the "abnormal" that dominated almost all areas of their professional and personal lives. Therefore, it was indeed difficult for them to relax and, consequently, they were quite irritable in the absence of physical rest and psychological relief. Above all Zbigniew Izdebski [25]mentioned that burnout among health workers negatively affects the department in which they work, but also their performance and the functioning of the entire health care system (Zbigniew Izdebski et. al 2023).

Looking at the anxiety subscale, one finds commonalities with most health professionals in Europe and the rest of the world, since they presented physical symptoms and felt very close to panic. One of these physical symptoms was dry mouth (21.9%), while a significant number felt difficulty breathing, which is an important function of the respiratory system. In short, their anxiety and fear blocked basic functions of their body. Hand tremors were less common, but the percentage of those who expressed concern about situations in which they might panic and look foolish in the eyes of others is notable. This is another sign of depersonalization and low mental toughness. Something similar happened with those who felt very close to panic (30.1%). It seems that their mental stamina was shaken and their reserves of mental strength were low, resulting in at least half of them (41.5%) feeling scared, without any reason. The fear that prevailed may have been the reason why many experienced the symptom of post-traumatic stress disorder, which was reported as an effect of the pandemic.

Burnout in healthcare professionals is related to work-family conflict, as Zbigniew Izdebski [25] believes, unrealistic patient expectations, constant pressure for continuous learning, long working hours, organizational issues, poor communication between colleagues, and personal issues (Zbigniew Izdebski et. al 2023). Within this context caused by the health crisis, healthcare personnel presented such characteristics, since 40.6% of them consider their work to be emotionally draining at a high level, just as they experience burnout due to their work.

This finding is consistent with the number of health professionals who stated that they often (42.9%) feel exhausted at the end of work, while 37% sometimes. Similar feelings are felt by some when waking up in the morning at the thought of another day at work. It seems that even thinking about the routine of the day in the same place, with incidents of the same nature, with the same shortcomings and under conditions that often hid uncertain developments sometimes manifests fatigue and exhaustion even in thought.

There are many who experience such intense physical fatigue that they feel that every hour at work is tiring for them. Usually, those who really work on the front lines have this feeling. According to the proportions of health professionals participating in this survey, 20.5% often felt this way and 35.2% sometimes did so.

Despite the fatigue, the physical and mental pressure that all these workers suffered, they managed to cope with the rest of their personal lives. Family and a friendly environment are usually highly valued by the Greek people and despite the necessary difficulties and necessary precautions, as well as the difficult hours in the workplace, the Greek always finds time for his family. The close family relationship, which is an element of culture and mentality for the Greek, seems to have worked as a balancing act for health professionals in those difficult periods. The percentages of responses showed that 35.6% often had enough energy for their own people and 34.2% sometimes. Therefore, socializing with familiar people during periods of intense stress and great anxiety seems to have been essential for many. Let us not forget that the role of the family in Greece is supportive and encouraging for each of its members when this is tested and communication resembles a therapeutic process. The same goes for contact with friends. Friendship ties are often as strong as family ties and thus they also carry the same positive sign.

And, the final comment is related with the gender. Women health professionals in this research expressed more signs of physical and mental exhaustion. This is also verified in a study conducted in Poland, where Nat. Budzynska and Joanna Morys [26] concluded that in women, burnout was related to education and socioeconomic status, while in men a relationship was observed with family status (Nat. Budzynska and Joanna Morys 2023). It seems that women syffer more and longer.

5. Conclusion

It is a fact that Greek healthcare professionals at all levels of the healthcare system experienced the same feelings of worry, frustration and stress as their colleagues in the rest of the world tested by the COVID 19 pandemic.

Lack of enthusiasm, a sense of joy and loss of interest are some of the common characteristics of the mental fatigue suffered by healthcare personnel. The country's Healthcare System literally "froze" and priority was given to the best care and treatment of those suffering from COVID 19. At the same time, optimism, good mood, positive thinking, taking initiatives and daily human contact froze. The care of patients who needed surgical procedures also froze. Hospitals were overwhelmed with a large number of patients, while there was no appropriate infrastructure to treat them. There was a general rush to meet needs, search for available beds, isolate patients and search for medications and treatment regimens.

This research is a roof that in countries which were better prepared and organized regarding treatment and prevention of spread, such as Greece, the levels of professional burnout were at better rates compared to those of countries abroad. It seems that the time that elapsed from the onset of the disease in China to the appearance of the first case in our country was decisive for infectious disease specialists, in collaboration with the National Public Health Organization and the Ministry of Health, under the umbrella of the World Health Organization, to take the necessary measures in all healthcare structures.

The image of stressed and gloomy faces inside healthcare units, fighting for the survival of patients, while trying to find answers to basic questions about the cause and ways to treat the deadly disease, became a daily occurrence.

In the context of this research, it is found, as in many others, that the gender that suffered the greatest burnout is mainly women.

Given that burnout is directly related to depersonalization, it is expected that this study also showed such evidence, since many stated that they had felt that they were worthless as individuals and that life had no meaning. Such a psychological state in conjunction with the inability to take initiatives is often the cause of medical error in both the diagnosis and management of an incident. The intense emotional burden of anxiety and worry, since many often caught themselves unable to calm down, becomes the cause, as it is noted by Stefan de Heart for reduced professional effectiveness and personal achievements. Therefore, it is reasonable that the tendency to overreact to the situations they faced and often felt nervous developed, precisely because it was difficult for them to find themselves in relaxed conditions. The result in these cases, according to others authors and researchers is the triggering of emotional reactions (such as depression, aggression) that ultimately lead to a decrease in cognitive performance, motivation, creativity and judgment.

In general, it was shown that health professionals experienced feelings of depression, intense anxiety and worry, as investigated through the questionnaire used. But the fatigue that resulted from the relationship between the therapist and the patient is also comparatively related to the corresponding research conducted in European and non-European countries during and after the pandemic. It is important, however, that it did not reach very high levels as in other countries. Something similar has been identified in other studies based on different research tools from this work, but similar to each other. Although these had common tools, the differences identified by country indicate, as others authors believe, like Helena Sofia Antio, that direct comparisons with similar studies are difficult to make strictly because of differences in populations of origin and the means used to measure burnout. On the contrary, it reached high levels, as is natural to happen in the context of a health crisis. Perhaps for this reason, in our country, not as many suicides were observed as in other countries, e.g. Italy.

In relation to free time and friends or family members, it is a fact that the pandemic had an impact, but not to the extent that it had in other countries abroad. The close and strong bonds of the Greek family and close friends do not erode easily, even in such difficult health conditions. On the contrary, they may function supportively and therapeutically to alleviate stress and frustration.

The health crisis that was caused by the pandemic was a significant experience for the entire world, but especially for all health professionals worldwide, leading to new paths and significant changes. The externalization of anxiety and distress with physical symptoms paves the way for further research on the early symptoms of panic attacks in health workers, which can be identified in a timely manner through specific diagnostic models of Artificial Intelligence. Thus, it will be easier to implement practices to deal with panic attacks and avoid emotional exhaustion of health professionals in similar health crises.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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