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General Practitioners and Occupational Physicians burnout and job satisfaction during the pandemic COVID-19

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Abstract:

In this perspective study, general practitioners and occupational physicians (GPOPs) are compared in terms of their job satisfaction and burnout. According to studies showing an immediate link between burnout and a lack of job satisfaction, it is unclear which of these two factors, which will apparently need to be researched and discovered through more research, influences the growth of the other. High burnout and low satisfaction arise as a result of intrapersonal variables, factors related to the workplace, and factors related to the dynamics of the workplace environment. There was a marked rise in burnout among GPOPs during the COVID-19 pandemic. It is critical to create psychological interventions to address this and boost job satisfaction levels because it has a detrimental impact on the workplace. It is critical to create psychological interventions to address this increase in job satisfaction levels because it has an adverse effect on the working environment.

Keywords: Job Satisfaction; Burnout; Occupational Physicians; General Practitioners; pandemic COVID-19

1. Introduction

In this study, burnout and job satisfaction among GPOPs are examined. These two variables are studied in terms of their relationship, the variables that influence them, and the consequences of those variables. A special mention is also made of the COVID-19 pandemic period, which appears to have contributed significantly more to levels of burnout. Burnout and low job satisfaction generally have several effects. As a result, it would be more acceptable to arrange these into various categories. Therefore, effects that are specific to one person constitute a first set of effects. The safety and organizational workplace factors, as well as the socio-psychological risks in the working environment of public health services in Greece, have been studied and published, and they provide information on how they affect employees [1–7]. The policies and management of public health authority services have an impact on workplace safety and performance [8–13]. Another factor influencing performance and the provision of high-quality services to society is job discontent among employees and the need for training and excellent education among public health professionals. The pressure from politicians and administrators combined with urban and semi-urban environments have a negative effect on the operation of the workforce in public health services. This was particularly evident during the COVID-19 pandemic. Burnout is observed in employees and consequently affected and increased by political interventions [13–16, 1–2, 7–8]. The confluence of public health and occupational health and safety, as well as public hygiene and occupational safety, is addressed in this study using a holistic approach in the context of risk factors. There were created job risk categories, and the proposed classification was scientifically validated by looking at the validity and dependability of each proposed risk category with pilot research [1]. For the preservation of health and safety at work as well as the prevention of the

effects of hazardous variables in the workplace, it is becoming more and more crucial to examine employment hazards and employees' risk perceptions [4,11]. It is based on reports, complaints, and working conditions, responsibilities, and duties of the GPOPs as well as the personal observations and remarks of the researchers, which are supported by the international literature. This research was chosen in such an important profession that remains neglected despite the fact that it contributes significantly to the protection of society [16]. The COVID-19 epidemic, the global financial crisis, declining wages, social instability, and the outcomes of occupational safety risks all have a substantial impact on the working circumstances and the effectiveness of personnel [8]. The fundamental components that show how important health, safety, and occupational risks are in relation to job position training quality and needs in GPOPs and organizations are the multidisciplinary nature of various environments, and materials of inspected facilities [1, 5, 17]. The risks that are connected to the work life of GPOPs are similar to a range of risks that have been reported by the extended literature for public healthcare workers [1-7], despite the fact that this particular occupation possesses a range of threats to employees' physical and psychological health. The degree to which a person is satisfied with his or her employment is greatly influenced by the environment, including aspects like the nature of the job, remuneration, equality, and justice in the workplace [13]. Demographics, and more especially the workplace environment (urban, semi-urban, and rural), had an impact on perceived job risks, stress, burnout, and job satisfaction levels [4,12]. The recent economic slump has raised the likelihood of the existing workplace risks and has also created new risks for employees, such as burnout and psychological risks [15, 18]. The degree to which an individual is satisfied with his work is significantly influenced by environmental issues such as climate change, water resources, and administration connected to political interventions, such as job characteristics, remuneration, equality, and justice in the workplace [3,19,20,21]. In fact, the link between burnout and job satisfaction appears to be independent of cultural context, as it has been shown in a variety of settings. It is normal to see relevant research being done in Egypt, where the well-known literature-based negative association between job satisfaction and burnout was also discovered [22]. As a result, this association is more frequently observed in health systems and does not seem to depend on a country's, a cultural context's, or a health system's level of structure. In any case, there are many factors that affect the association between job satisfaction and burnout in GPOPs, making the connection between the two less straightforward. One such element is emotional intelligence, for instance. The development of burnout is prevented by emotional intelligence, which also has a good impact on job satisfaction values. Due to the involvement of additional factors, such as emotional intelligence, the link between job satisfaction and burnout is more nuanced [12]. It is obvious that throughout the pandemic period, a wide range of factors simultaneously impacted health workers' job satisfaction and burnout. As a result, it is a complicated phenomenon that is not caused by a single source or circumstance. The economic crisis brought on by the pandemic is a major issue that is linked to burnout and low job satisfaction in this time. Undoubtedly, the epidemic caused a considerable reduction in global economic growth. There were also wage reductions in nations with health systems that are not based on a rigorous system of predetermined wages to ensure the sustainability of those systems during the early pandemic waves. Given the higher operating expenses for maintaining health systems in order to meet the demands of the coronavirus response, this was in fact foreseen. The resulting compensation cuts also contributed to increased burnout and decreased job satisfaction. Both GPOPs and health professionals in general are impacted by these effects [18]. The possibility of changing work settings throughout the course of a career was another factor that caused burnout to rise over time. A health professional would frequently end their career in the hospital where their career had begun in the past. After all, industrial society was characterized by regularity. Humanity has transitioned from an industrial civilization to a late modern era, which is frequently referred to in literature as a post-industrial society, and then to the information society in recent decades. Along their careers, health professionals, including GPOPs, are especially prone to move employers. As a result of these frequent and extremely stressful transitions, burnout and low job satisfaction are thus more likely to develop [21]. The development of burnout during the pandemic period was often accelerated by some variables more than others. Working in COVID-19 response units is by far the most significant component. In fact, these units include substantially higher concentrations of all other elements that are said to have gotten worse throughout the pandemic period. Because of this, when compared to other health professionals, those who worked in COVID-19 response units also displayed the most significant burnout symptoms [20]. More broadly, the pandemic can be viewed as the culmination of a huge transformation in the medical field and important unpredictable developments that are regularly detected at all levels. Beginning in the 1970s, researchers started

looking into the idea of burnout, both among doctors and in general. This research was predicated on the notion that a phenomenon was being investigated that had not previously been studied. In other words, it was assumed that burnout had always affected health workers at these levels and that up until that point, the problem's applicability had not been shown. Health practitioners were able to reflectively recognize a condition that has always existed due to advancements in study methodologies and research progress [21].

The aim of the present study is :

- (1) to examine the level of burnout and Job Satisfaction in GPOP.
- (2) to identify specific determinants of burnout and Job Satisfaction in GPOP, including various individual and work-related factors.

2. Materials and Methods

Drawing on the data collected from this study, this paper not only presents Burnout and Job Satisfaction in GPOP prevalence and evolution during the last 3 years, but measures the effect of the COVID-19 pandemic on this pre-existing Burnout and Job Satisfaction. The study hypothesis is that the COVID-19 crisis has greatly worsened burnout in all four dimensions (emotional exhaustion, depersonalization, and personal accomplishment, total Burnout), and Job Satisfaction among GPOP. This is a multi-center descriptive study that examines the workload of GPOPs and how it impacts them emotionally and professionally utilizing a convenience sampling of articles and data. The study field is made up of an accumulation of studies from all around the world. In November 2021 and September 2023, the survey was carried out. In this study, we exclusively concentrate on the studies in order to illustrate how the COVID-19 pandemic's emotional influence on burnout and job satisfaction changed over time. In figure 1 describe the study hypothesis.

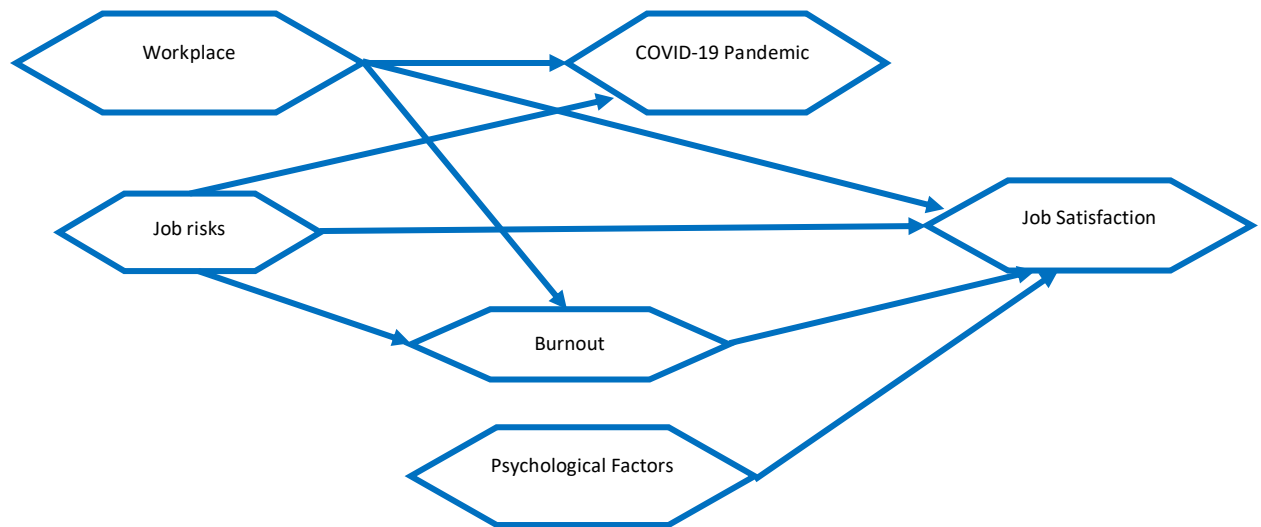


Figure 1. Relationships of factors and hypothesized in this study

2.1 Research methods

The databases were searched for original research papers about exposure to and its effects in GPOP in terms of burnout and job satisfaction. These publications had to have been authored or published in English during the previous five years. Additionally, links were looked up in the retrieved publications' references. Suitable keyword combinations for this search. To manage the information flow via the several review phases, this study used the preferred reporting items for reviews. MEDLINE, Pub Med, CINAHL, Scopus, Web of Science, Science Direct, academic, research or reports, primarily Google Scholar, and the WHO research database were the data sources for this review. In Figure 2, show the flow chart diagram of General Practitioners and Occupational Physicians burnout 2 and job satisfaction during the pandemic COVID-19, study.

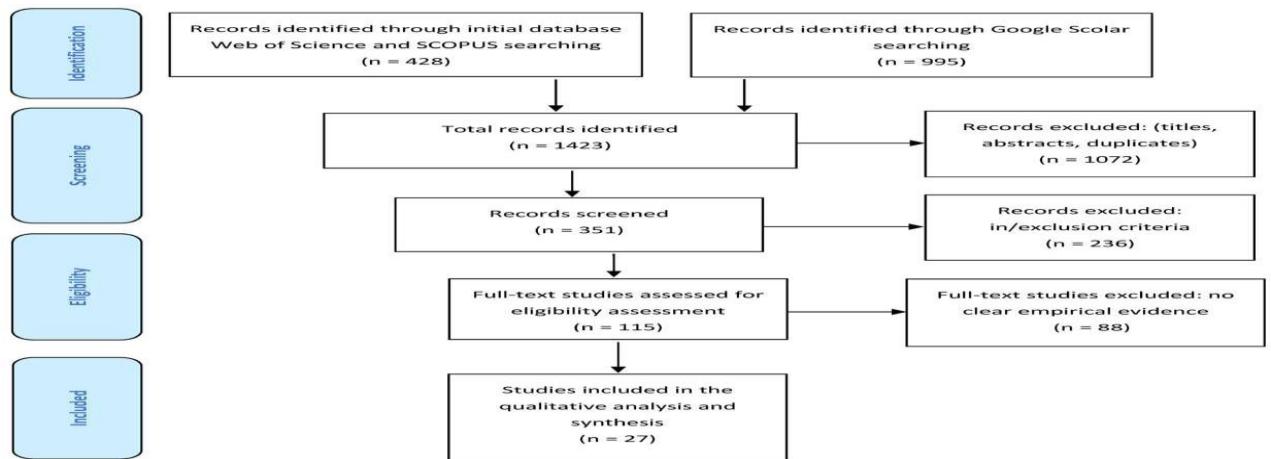


Figure 2, Flow chart diagram of study.

3. Results of Burnout and Job Satisfaction

The perspectives results that average given in all studies of GPOP presents in Table 1 the summary statistics for Emotional Exhaustion (EE), Personal Accomplishment (PA), Depersonalization (DP), Burnout (Total) and Job Satisfaction in the data sample of the study

	Mean	SD	Median	Range	IQR	Skewness	Kurtosis
Emotional Exhaustion (EE)	2.967	0.99221	3.000	5.110	1.390	-0.394	-0.127
Personal Accomplishment (PA)	2.5426	0.82964	2.500	3.750	1.250	0.065	-0.635
Depersonalization (DP)	1.8189	1.17071	1.500	5.500	1.500	0.465	-0.264
Burnout Score (Total)	2.7233	0.69808	2.770	2.860	1.050	-0.378	-0.8
Job Satisfaction	3.2437	0.54619	3.330	3.080	0.680	-0.245	-0.841

Table 1. Summary statistics for Emotional Exhaustion (EE), Personal Accomplishment (PA), Depersonalization (DP), Burnout (Total) and Job Satisfaction.

4. Discussion

An second poll of 2,000 American physicians revealed a negative association between burnout and job satisfaction. Measures were used in this poll to gauge job satisfaction and burnout. The analysis of this data revealed that PGPs' job satisfaction decreased in direct proportion to the severity of their burnout [20,22,23]. In any event, the composite linkages between burnout and job satisfaction also result in linked detrimental effects of both factors in the workplace. An associated study among American internists from 2014 to 2017 found that this was typical. In this study, 1882 GPOPs in total were investigated while completing assessments of burnout and workplace disengagement. A significant disengagement from the workplace emerged as a result of excessive burnout [24]. The topic of burnout specifically during the epidemic time has been the subject of several studies. A similar study was carried out in the US between 9 December 2021 and 24 January 2022. In this study, 2,440 doctors with burnout were investigated. In order to examine the potential variation in burnout among pathologists during the COVID-19 epidemic, this study also included data from prior years, specifically from 2011 onward. According to the results, depersonalization increased by 60.7% while emotional weariness, a crucial component of burnout, increased by 38.6%. In 2021, 62.8% of GPOPs exhibited at least one clinical indication of burnout, up from 45.5% in 2011 and 54.4% in 2014, disparities that were statistically significant overall [25,26]. It has also been investigated whether burnout varied between the initial wave of the pandemic and later waves, in addition to looking at changes before and throughout the COVID-19 epidemic. In March 2020, the pandemic's initial wave struck. In this regard, a research was carried out in Canada at the time among GPOPs to ascertain their degrees of burnout. Then, in March 2021, a

comparable measurement was made. Burnout was reported to affect 28% of GPOPs in March 2020; a year later, that number had increased to 34.7%. Consequently, it was discovered that burnout among medical professionals increased concurrently with the pandemic [27]. The conventional link between burnout and PGPs' job satisfaction appears to still be present during the epidemic time. The relationship between job satisfaction and burnout was studied in a pertinent study of 138 GPOPs in the United States. According to this study, there was a negative link between these two factors, meaning that burnout levels were lower the higher the job satisfaction levels. Therefore, it appears that these conventional correlations of the two variables established through earlier studies are valid during the pandemic period [28]. Another study conducted in Greece during the epidemic looked at the connection between job satisfaction and burnout. A sample of 185 public health workers inspectors, were subjected to this survey, which ran from April to October 2021. Both a questionnaire to measure burnout and a questionnaire to measure job satisfaction were used in this survey. Through this study, a negative association between these two factors was discovered, i.e., it was discovered that with higher levels of burnout had lower levels of job satisfaction [29]. The phenomenon of increasing working hours for health professionals was noticed throughout the same time period. It is a truth that health services were unable to handle the intricate demands of the pandemic epidemic waves given their current capabilities. The demand on health systems was far greater in relation to what they could handle and resist, especially before the discovery of vaccines. As a result, health systems were under unbalanced pressure, which made medical staff members work longer hours. Days off and holidays were lost, and the overtime was frequently unpaid and informal. For GPOPs, these factors contributed to a further rise in burnout and a subsequent fall in job satisfaction [30]. The worry of contracting the coronavirus is a third factor. Health workers undoubtedly experienced severe psychological stress as a result of the pandemic, particularly those who served on the front lines. General practitioners are likewise affected by these impacts. GPOPs had to deal with the dread of coronavirus infection while working on the front lines of the pandemic response, which raised burnout and decreased job satisfaction [30–32]. The societal unrest brought on by the pandemic is the fourth parameter. It is a truth that the curfew and other emergency responses to the pandemic have caused significant societal disturbance. The social disturbance also had an impact on pathologists as social beings. These pressures increased ' GPOPs workload significantly, contributed to their increased burnout, and decreased their job satisfaction [30].

Finally, throughout the pandemic period, there was a major negative impact on GPOPs interpersonal interactions due to overall stress and wider disturbance. Conflicts between doctors and nurses, for example, emerged as a result of the pressure placed on health systems, which also caused interpersonal relationships to become more intense. Increased burnout and decreased job satisfaction during the pandemic time were also brought on by the breakdown of relationships between pathologists and other members of the health care system [30]. The truth, though, might be a little different. Since the 1970s there have been constant changes in the way health professionals, including GPOPs, work. For instance, the introduction of contemporary technology into the workplace is one such transition. GPOPs and other health professionals in general were obliged to acquire new information and abilities in order to be able to fulfill the increased demands of their working environment because technology was thus heavily incorporated into medical research. Since the 1970s, when the burnout phenomena was not investigated, the expectations of the workplace have intensified and are undoubtedly considerably different from what they were [33]. Anyhow, it's conceivable that both of these viewpoints are equally incorrect. That is to say, neither it can be stated that the burnout phenomena did not exist or that it did not exist and is only a result of changes in the workplaces of health professionals. Instead, it appears more plausible to argue that burnout has always been among medical professionals, such as GPOPs , and that it has gotten worse recently as a result of the new dynamics that have taken hold in healthcare organizations. It is possible to view the pandemic as the culmination of these continuous changes and the pressured working conditions that health workers are experiencing Lazarides et al., 2021, [33–34]. Last but not least, it's important to remember that fatigue during this time is linked to a decrease in adherence to the behaviors needed to stop the coronavirus from spreading. In March 2020, a sample of 1,734 general practitioners in China was evaluated in a study that is relevant to this discussion. According to this study, people who experienced burnout in more severe forms washed their hands less frequently than the average person [34,35].

5. Conclusions

Considering the aforementioned, it would appear that burnout and low job satisfaction are intrinsically linked. Future research must clarify which of these two factors affects the growth of the other because it is unclear at this time. High burnout and low satisfaction are a result of intrapersonal issues, factors related to the workplace, and factors related to the dynamics of the home environment. Burnout levels among GPOPs significantly increased throughout the epidemic period. It is essential to address this issue and raise job satisfaction levels through the development of psychological therapies.

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References

1. I. Adamopoulos, D. Lamnisis, N. Syrou, G. Boustras, (2022). Public health and work safety pilot study: Inspection of job risks, burn out syndrome and job satisfaction of public health inspectors in Greece. *Safety Science*, 147 (2022), p. 105592
2. Adamopoulos, Ioannis Pantelis and Syrou, Niki and Lamnisis, Demetris and Boustras, Georgios, Inspection Perceptions of Occupational Training Needs and Training Quality in Public Health Inspectors and Organizations Services in Greece (January 6, 2023). Available at SSRN: <https://ssrn.com/abstract=4319406> or <http://dx.doi.org/10.2139/ssrn.4319406>
3. Adamopoulos, I. P., and Syrou, N. F. (2023). Occupational burnout in public health care sector, scales, measures, and education in the frame of period COVID-19 pandemic. *European Journal of Environment and Public Health*, 7(2), em0127. <https://doi.org/10.29333/ejeph/12532>
4. Ioannis Adamopoulos, Niki Syrou, Demetris Lamnisis, George Boustras,(2023). Cross-sectional nationwide study in occupational safety & health: Inspection of job risks context, burn out syndrome and job satisfaction of public health Inspectors in the period of the COVID-19 pandemic in Greece, *Safety Science*, Volume 158, 2023, 105960, ISSN 0925-7535, <https://doi.org/10.1016/j.ssci.2022.105960>.
5. Adamopoulos, I. P., Bardavouras, A. N., and Syrou, N. F. (2023). Occupational safety, policy, and management in public health organizations and services. *European Journal of Environment and Public Health*, 7(1), em0122. <https://doi.org/10.29333/ejeph/12445>
6. I Adamopoulos, D Lamnisis, N Syrou, G Boustras,(2022) Training Needs and Quality of Public Health Inspectors in Greece during the COVID-19 pandemic: Demetris Lamnisis, *European Journal of Public Health*, Volume 32, Issue Supplement 3, October 2022, ckac131.373, <https://doi.org/10.1093/eurpub/ckac131.373>
7. Adamopoulos, Ioannis Pantelis,(2022). Classification Categorizations of Job Risks Occupational Hazards in Environmental and Public Health Inspectors. Available at SSRN: <https://ssrn.com/abstract=4230063> or <http://dx.doi.org/10.2139/ssrn.4230063>
8. Adamopoulos, Ioannis , Syrou Niki, Lamnisis Demetris and Boustras Georgios,(2022). Risk Contexts Occupational Hazards Associated with Quality and Training Needs in Public Health Inspectors in Greece. Available at SSRN: <https://ssrn.com/abstract=4230062> or <http://dx.doi.org/10.2139/ssrn.4230062>

9. Adamopoulos, Ioannis Pantelis,(2022). Epidemiological Surveillance, Detection and Classification of Infection in Community from SARS-CoV-2, and Control in Municipal Wastewaters in Cyprus and Reuse Water (September 19, 2022). Available at SSRN: <https://ssrn.com/abstract=4230341>
10. I. Adamopoulos, N. Syrou, D. Lamnisis, (2022). Workplace environment and burn out in public health workforce inspection services: Research study, *Int. Res. J. Pharm. Med. Sci.*, 5 (5) (2022), pp. 28-35, 10.13140/RG.2.2.18619.28966
11. I.P. Adamopoulos, N.F. Syrou, (2022). Workplace safety and occupational health job risks hazards in public health sector in Greece. *Eur J Public Health*, 6 (2) (2022), Article em0118, 10.21601/ejeph/12229
12. Adamopoulos, I. P. (2022). Job Satisfaction in Public Health Care Sector, Measures Scales and Theoretical Background. *European Journal of Environment and Public Health*, 6(2), em0116. <https://doi.org/10.21601/ejeph/12187>
13. Adamopoulos, I. P., and Syrou, N. F. (2022). Associations and Correlations of Job Stress, Job Satisfaction and Burn out in Public Health Sector. *European Journal of Environment and Public Health*, 6(2), em0113. <https://doi.org/10.21601/ejeph/12166>
14. Ioannis Adamopoulos, Demetris Lamnisis, Niki Syrou, George Boustras,(2022). Inspection of job risks, burn out syndrome and job satisfaction of Greek Public Health Inspectors, *Safety and Health at Work*, Volume 13, Supplement, 2022, Page S294, ISSN 2093-7911, <https://doi.org/10.1016/j.shaw.2021.12.1670>
15. Adamopoulos, I.; Syrou, N. Workplace Environment and Burnout in Public Health Workforce Inspection Services in Greece during the COVID-19 Pandemic. *Med. Sci. Forum* 2023, 19, 4. <https://doi.org/10.3390/msf2023019004>
16. Adamopoulos, I.; Syrou, N. Occupational Hazards Associated with the Quality and Training Needs of Public Health Inspectors in Greece. *Med. Sci. Forum* 2023, 19, 2. <https://doi.org/10.3390/msf2023019002>
17. Adamopoulos, I.; Frantzana, A.; Adamopoulou, J.; Syrou, N. Climate Change and Adverse Public Health Impacts on Human Health and Water Resources. *Environ. Sci. Proc.* 2023, 26, 178. <https://doi.org/10.3390/envirosciproc2023026178>
18. Adamopoulos IP, Syrou NF. Administration safety and occupational risks relationship with job position training quality and needs of medical public health services workforce correlated by political leadership interventions. *ELECTR J MED ED TE.* 2023;16(3):em2305. <https://doi.org/10.29333/ejmets/13585>
19. Adamopoulou JP, Frantzana AA, Adamopoulos IP. Addressing water resource management challenges in the context of climate change and human influence. *EUR J SUSTAIN DEV RES.* 2023;7(3):em0223. <https://doi.org/10.29333/ejosdr/13297>
20. Keeton K, Fenner DE, Johnson TR, Hayward RA. Predictors of physician career satisfaction, work-life balance, and burnout. *Obstetrics & Gynecology.* 2007; 109(4): 949-955.
21. Hassan A. Abd-Elmaksoud, S. Association between job stress and job satisfaction among physicians in Bahna Major Hospitals, Kaliobia Governorate. *Egyptian Journal of Occupational Medicine.* 2015; 39: 177-194.
22. Ozyurt A, Hayran O, Sur H. Predictors of burnout and job satisfaction among Turkish physicians. *Journal of the Association of Physicians.* 2006; 99(3): 161-169.
23. Psilopanagioti A, Anagnostopoulos F, Mourtou E, Niakas D. Emotional intelligence, emotional labor, and job satisfaction among physicians in Greece. *BMC health services research.* 2012; 12(1): 1-12.
24. Rao S, Ferris TG, Hidrue MK. et al. Physician burnout, engagement and career satisfaction in a large academic medical practice. *Clinical medicine & research.* 2020; 18(1): 3-10.
25. Shanafelt TD, Boone S, Tan L, et al. (2012). Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Archives of internal medicine;* 172(18): 1377-1385.
26. Gajjar J, Pullen N, Li Y, Weir S, Wright, JG. Impact of the COVID-19 pandemic upon self-reported physician burnout in Ontario, Canada: evidence from a repeated cross-sectional survey. *BMJ open.* 2022; 12(9): e060138.

27. Lazarides AL, Belay ES, Anastasio AT, Cook CE, Anakwenze OA. Physician burnout and professional satisfaction in orthopedic surgeons during the COVID-19 Pandemic. *Work*. 2021; 69(1): 15-22.
28. Adamopoulos I, Syrou N, Lamnisis D, Boustras G. Cross-sectional nationwide study in occupational safety & health: Inspection of job risks context, burn out syndrome and job satisfaction of public health Inspectors in the period of the COVID-19 pandemic in Greece. *Safety Science*. 2023; 158: 105960.
29. Adamopoulos P, Syrou NF. Associations and correlations of job stress, job satisfaction and burn out in public health sector. *European Journal of Environment and Public Health*. 2022; 6(2): em0113.
30. Alrawashdeh HM, Al-Tammemi A, Alzawahreh MK. et al. Occupational burnout and job satisfaction among physicians in times of COVID-19 crisis: a convergent parallel mixed-method study. *BMC public health*. 2021; 21: 1-18.
31. Faria A, Coelho H, Silva A et al. Impact of the COVID-19 pandemic on the development of burnout syndrome in frontline physicians: prevalence and associated factors. *Revista da Associação Médica Brasileira*. 2021; 67: 942-949.
32. Essary AC, Bernard KS, Coplan B, Dehn R, Forister JG, Smith NE, Valentin, V. Burnout and job and career satisfaction in the physician assistant profession: a review of the literature. *NAM Perspectives*: 2018.
33. Bagherian F, Hosseini, S. Burnout and job satisfaction in the emergency department staff: a review focusing on emergency physicians. *International Journal of Medical Investigation*. 2019; 8(3): 13-20.
34. Zhou Q, Lai X, Wan Z, Zhang X, Tan L. Impact of burnout, secondary traumatic stress and compassion satisfaction on hand hygiene of healthcare workers during the COVID-19 pandemic. *Nursing Open*. 2021; 8(5): 2551-2557.
35. Gajjar J, Pullen N, Li Y, Weir S, Wright, JG. Impact of the COVID-19 pandemic upon self-reported physician burnout in Ontario, Canada: evidence from a repeated cross-sectional survey. *BMJ open*. 2022; 12(9): e060138.