

Proceeding Paper

# Workplace Environment and Burnout in Public Health Workforce Inspection Services in Greece during the COVID-19 Pandemic <sup>†</sup>

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**Abstract:** Evidence regarding the strong links between emotional exhaustion, personal accomplishment, depersonalization, total occupational burnout and workplace environment, and their consequences for the general well-being of employees in public health inspection workforce services, is limited. The aim of this study was to report the burnout of the public health workforce in Greece and investigate possible relationships with the workplace environment during the COVID-19 pandemic. This was a quantitative, cross-sectional, nationwide research study in Greece, conducted in the second quarter of 2021. An online survey was conducted. The response rate was 27%. Burnout was measured using the Maslach Burnout Inventory Questionnaire; 19.46% of participants reported low burnout levels, 37.84% of participants reported medium burnout levels, and 42.70% reported high (above average) burnout levels. The total burnout score of rural environments was higher compared to all other groups ( $\chi^2 = 16.017$ ), ( $\beta = 0.455$ ),  $p < 0.001$ . Medium levels of emotional exhaustion were reported. Depersonalization scores were low. The personal accomplishment score was higher in rural environments compared to all other groups ( $\chi^2 = 26.417$ ). The depersonalization score was higher in semi-urban environments compared to all other groups ( $\chi^2 = 6.188$ ). The findings indicate that burnout has proven to be an issue. This study contributes to the limited evidence supporting links associations and correlations between burnout and workplace environment and adds new information regarding occupational health and safety factors for workplace environment, which could be exploited to advance the quality of public health services provision during the COVID-19 pandemic in Greece.

**Keywords:** burnout; workplace environment; public health workforce; occupational health; COVID-19 pandemic



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## 1. Introduction

The public health sector ensures and promotes health, and acts proactively regarding health issues. Public health deals with health threats based on population health analysis. A population may be too small or too large to include residents of many continents, as in the case of the COVID-19 pandemic. In Greece, public health services were provided by the Ministry of Health and Directorates of Health Control and Environmental Hygiene of all Regions' Prefectures. In this frame, it can be argued that the multidisciplinary nature of employees in the public health inspections services workforce, different environments

and materials of inspected facilities, out-of-office work, and the responsibilities of employees in the public health inspections services workforce in Greece during the COVID-19 pandemic constituted the basic elements that highlight the importance of OHS in public health inspection organizations [1,2]. Yet, risks that are related to work life in workplace environments are under researched, even though this specific occupation possesses a range of threats to the physical and psychological health of employees similar to a variety of risks that have been reported in the extended literature for healthcare workers and law enforcement officers [1,3,4].

In the frame of the COVID-19 pandemic, the burden on health workers has been characterized as severe in low- and middle-income countries, such as Greece, due to resource constraints and underfunded and understaffed organizations [5], while occupational stress and burnout combined with insufficient resources and health services during the pandemic may put health workers at greater risk of mental health disorders [6]. As well, during the COVID-19 pandemic, healthcare staff have reported moderate to extreme concerns regarding burnout, nervousness, anxiety, depression, and hopelessness [7]. A recent study in Iran about healthcare workers on the frontline fighting COVID-19 showed a higher risk for mental health problems, including stress, anxiety, depression, and insomnia. More specifically, factors such as communications, manager support, change and demand had the greatest impact on employees stress levels [8].

Workplace environment (rural, urban, and semi-urban) affects perceived levels of burnout. Employees in rural environments reported higher levels of burnout compared to employees in urban environments. A recent study from China during the COVID-19 pandemic, utilizing the Maslach Burnout Inventory, demonstrated that more than half of rural healthcare workers reported moderate to severe levels of burnout, raising the issue of immediate strategizing to mitigate this prevalent mental health issue [9]. Leskovic et al. [10] also found that Slovenian healthcare workers in rural areas presented intensified burnout during the COVID-19 pandemic, as well as decreased levels of job satisfaction compared to the pre-pandemic era. Given the importance of public health services in society, and especially for the safety of the population, the quality of public health inspection must remain high; this presupposes the high quality and performance of service provision from employees of public health inspection workforce services that oversee these tasks.

### *Study Objectives*

To date, although repeated evidence of the strong link between burnout total score, emotional exhaustion, personal accomplishment, depersonalization, and their consequences for the general well-being of employees of the public health inspection workforce is limited, the nature of the work presents a range of threats in addition to the association of workplace conditions to burnout. The research model of the present study is based on the pilot study of Adamopoulos et al. [2] regarding the expanded mediation model of job burnout by Leiter [9,11], developed for the healthcare setting. The main objectives of the current study are the following:

- (1) To examine the various types and levels of burnout in employees in public health inspection workforce services in Greece during the COVID-19 pandemic.
- (2) To detect possible differences between burnout in urban and rural settings.

## **2. Methodology**

### *2.1. Research Design*

This is a cross-sectional, original study, as data were gathered by the researcher directly from a sample of employees in public health inspection workforce services in Greece during the COVID-19 pandemic for one time period, and statistical analysis was utilized to uncover possible associations between the data. As the purpose of this research as to reveal the burnout syndrome of employees in public health inspection workforce services and investigate the causal relationship between workplace environment and burnout, the study utilizes a quantitative methodology.

## 2.2. The Sample

The sample for this study comprised 185 employees in public health inspection workforce services in Greece. We should point out that the sample was selected based on information from the Human Resources Directorates, the organizational charts of the Services of Public Health Organizations, and the requirements of the research being carried out.

## 2.3. Sampling Process

Sampling took place between March 2021 and June 2021, all active public health workforce employees throughout Greece were contacted, providing  $N = 185$  responses, which accounts for 27% (185/684) of the population under study. The web-based survey was hosted on Google Forms and was made available between March 1st and June 22nd of 2021. We explained the purpose and frame of the research study and assured participants that the survey would be anonymous, optional, and encoded.

## 2.4. Statistical Analysis

Data gathered using the questionnaire were analyzed using SPSS version 20. Frequency analysis was performed for nominal and ordinal demographic and job-characteristic variables; for scale(dependent) variables, mean (M), median (Mdn), and standard deviation (SD) measures were calculated for each variable. Descriptive statistics, which did not allow conclusions about the correlations of the variables considered, were especially important because they facilitated visualization of the raw data and allowed for a simpler interpretation of the data. Cronbach's alpha was calculated to confirm the reliability of each questionnaire and sub-scale. Based on the scoring of each survey section, new variables were calculated and examined relative to their distribution characteristics using the Shapiro-Wilk test, which showed non-normal distributions leading to non-parametric statistical test selection. All demographics and job characteristics were examined in relation to the dependent variables (burnout). Significant differences between groups of demographic variables (gender, education, marital status, job position, etc.) were identified and reported using Mann-Whitney and Kruskal-Wallis tests. Median values were plotted for each group in clustered diagrams to showcase the detected differences. To explore the variety and extent of burnout encountered by employees in public health inspection workforce services in Greece, descriptive statistics were calculated and presented in summary for each demographic group, as well as in total. The associations between burnout and workplace environment were calculated using non-parametric correlation analysis (Spearman's coefficient), as the main aim of this study was to investigate associations between burnout and workplace environment. Specifically, for burnout, each dimension (emotional exhaustion, depersonalization, and personal accomplishment) was also examined as a separate dependent variable. For each dependent variable, hierarchical linear regression analysis was used to assess the effect of workplace environment. Statistical analyses were performed using the statistical package SPSS 20, and statistical significance was set at  $p < 0.05$ .

## 3. Results

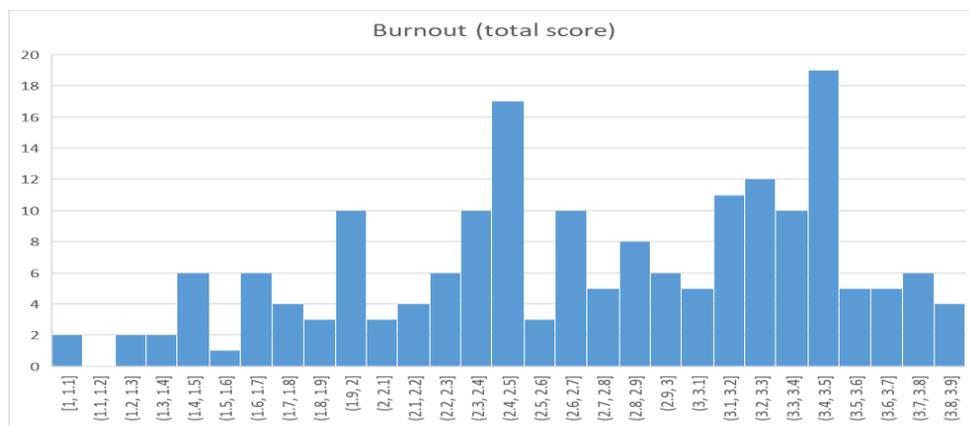
### *Burnout and Workplace Environment*

Table 1 presents the summary statistics for emotional exhaustion (EE), personal accomplishment (PA), depersonalization (DP), and burnout (total) in the sample of the final study ( $N = 185$ ). Burnout and its dimensions were measured using a 7-point Likert scale (0 = never, 6 = always), meaning that average values equal to or larger than 3 indicated high levels of burnout, whereas values less than or equal to 2 indicated low levels of burnout. Mean scores for burnout in the range (2,3) were considered medium levels of burnout. On average, medium levels of emotional exhaustion ( $M = 2.97$ ,  $SD = 0.99$ ) and personal accomplishment ( $M = 2.54$ ,  $SD = 0.83$ ) were reported. Levels of depersonalization were low ( $M = 1.81$ ,  $SD = 1.17$ ). The total score for burnout ( $M = 2.72$ ,  $SD = 0.69$ ) indicated an average burnout level among participants, yet the histogram in Figure 1 is slightly negatively skewed (skewness =  $-0.378$ ). More specifically, the distribution of samples

according to this categorization: 19.46% of participants reported low burnout levels, 37.84% of participants reported medium burnout levels, and 42.70% reported high (above average) burnout levels. This means that although the majority of the sample (57.3%) reported low to medium burnout levels, there was a significant proportion (42.7%) that reported above average burnout.

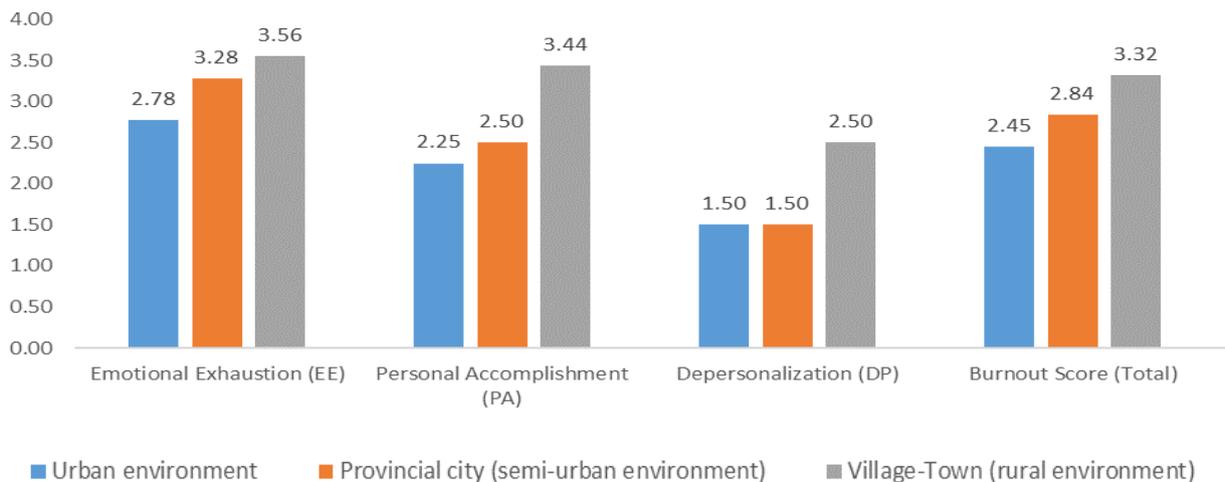
**Table 1.** Summary statistics for emotional exhaustion (EE), personal accomplishment (PA), depersonalization (DP), and burnout score (total).

	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



**Figure 1.** Histogram of burnout total score (N = 185).

Similar results were derived for the burnout and workplace environment, presented in Figure 2.



**Figure 2.** Median values of burnout and workplace environment.

Table 2 presents the results of univariate analyses of burnout in relation to workplace (Kruskal–Wallis test). Personal accomplishment scores of village-town participants (rural environment) (Mdn = 3.56) were higher compared to all other groups, a difference that was statistically significant,  $\chi^2 = 26.417, p < 0.01$ .

**Table 2.** Univariate analyses of burnout in relation to workplace (Kruskal–Wallis test).

Workplace		Emotional Exhaustion (EE)	Personal Accomplishment (PA)	Depersonalization (DP)	Burnout Score (Total)
Urban environment	Mean	2.8092	2.2865	1.6195	2.5294
	Std. Deviation	1.04194	0.71606	1.17693	0.68184
	Median	2.7778	2.2500	1.5000	2.4545
	Range	5.11	3.63	5.50	2.77
Provincial city (semi urban environment)	Mean	3.0895	2.6250	1.9167	2.8497
	Std. Deviation	1.02416	0.86137	1.11163	0.68306
	Median	3.2778	2.5000	1.5000	2.8409
	Range	4.11	3.50	4.50	2.86
Village-Town (rural environment)	Mean	3.3395	3.2639	2.3472	3.2058
	Std. Deviation	0.64348	0.69422	1.05437	0.47988
	Median	3.5556	3.4375	2.5000	3.3182
	Range	3.22	3.13	4.00	2.45
Kruskal-Wallis	$\chi^2$	4.098	26.417	6.188	16.017
	<i>p</i>	0.129	0.000	0.045	0.000

Depersonalization scores of provincial city participants (semi-urban environment) (Mdn = 2.00) were higher compared to all other groups, a difference that was statistically significant,  $\chi^2 = 6.188$ ,  $p < 0.05$ . Burnout total scores of village-town participants (rural environment) (Mdn = 3.32) were higher compared to all other groups, a difference that was statistically significant,  $\chi^2 = 16.017$ ,  $p < 0.01$ .

Hierarchical linear regression analysis was performed for burnout total scores; variables that significantly correlated with burnout were imported, and the model was adjusted for demographics. The unadjusted model indicated higher levels of burnout for employees in public health inspection workforce services ( $R^2 = 0.284$ ). When adjusted for demographics ( $R^2 = 0.449$ ), were significant predictors of total burnout ( $\beta = 0.455$ ,  $p < 0.001$ ), where as being married ( $\beta = -0.166$ ,  $p = 0.022$ ) and working in an urban environment ( $\beta = -0.184$ ,  $p = 0.017$ ) decreased burnout. On the other hand, working in a rural environment ( $\beta = 0.167$ ,  $p = 0.031$ ) was positively related to burnout for employees in public health inspection workforce services in Greece during the COVID-19 pandemic.

#### 4. Discussion

A cross-sectional, nationwide quantitative study was designed (including demographics and instruments to measure burnout), and an online survey was distributed to the public health workforce. In this study, burnout in different workplace environments was identified as relevant to employees in public health inspection workforce services in Greece during the COVID-19 pandemic. These health inspection services tasks force are achieved through a variety of functions, including, but not limited to, inspections and assessments, consultation with the public as well as other agencies, data and sample collection, and enforcement of regulations. Given the breadth of their duties, it comes as little surprise that public health inspection services employees face many health and safety issues while at work [1,2,12,13]. Health and safety, as well as employee well-being, have been found to relate to several qualitative values that influence the workplace [13–15] in the frame of organizational and prevention culture. Moreover, justice and responsibility, as well as compliance of individuals and organizational development, leads to growth and resilience [10]. Burnout has proven to be an issue for employees of public health workforce inspection services, as 42.7% of participants reported above average burnout scores. Indeed, health related professions are more prone to burnout, as depicted by previous research [11]. Moreover, in the frame of the COVID-19 pandemic, the burden on health workers has been characterized as highly severe in low- and middle-income countries, due to resource constraints and underfunded and understaffed organizations [4]. Another study argues that occupational stress and burnout combined with insufficient resources and health services during the pandemic might put health workers at greater risk for mental health disorders [16].

## 5. Conclusions

During the pandemic in Greece, the combination of limited technical and manpower resources, as well as long work hours, may explain the higher levels of burnout of employees in public health inspection workforce services in Greece during the COVID-19 pandemic in rural areas. These results can help the public administration training programs and interventions in order to provide a safe work environment for employees in public health inspection workforce services and other health employees. Moreover, the public administration might use these results and insights in the effort to increase performance and productivity in the public sector, as employees in rural workplaces report higher scores of burnout in all dimensions, emotional exhaustion, personal accomplishment, and depersonalization.

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