



# Exploring burnout in the Italian Armed Forces amid the COVID-19 pandemic: a clustering approach to identify psychological preventing and risk factors

Rachele Mariani<sup>1</sup> · Cinzia Di Monte<sup>1</sup> · Federica Murgia<sup>2</sup> · Emanuele Foglia<sup>3</sup> · Simone Deiana<sup>4</sup> · Fabio Ravecca<sup>5</sup> · Giorgio Fanelli<sup>3</sup> · Fabio Cippitelli<sup>6</sup> · Paolo Trabucco Aurilio<sup>7</sup> · Alessia Renzi<sup>1</sup> · Renata Tambelli<sup>1</sup> · Nicola Sebastiani<sup>2</sup> · Michela Di Trani<sup>1</sup>

Accepted: 22 January 2024 / Published online: 6 February 2024  
© The Author(s) 2024

## Abstract

The Italian army played a crucial role in addressing the COVID-19 pandemic by supplying the country with military personnel, sanitary specialists, equipment, and infrastructure. This is the first Italian study involving the entire population of the National Armed forces with the aim of investigating the psychological factors that can protect or pose risks in effectively managing heightened distress. We explored how coping capability and the capacity to face uncertainty can contribute to predicting levels of burnout during the COVID-19 pandemic. A total of 4409 Italian military personnel completed questionnaires assessing burnout, coping style, and intolerance of uncertainty. In addition to the Burnout cut-off levels, a cluster analysis was conducted, integrating the variables of Depersonalization, Emotional Exhaustion, and Personal Gratification in order to identify risk profiles and specific characteristics. Based on the Burnout cut-off levels, military personnel are experiencing higher levels of burnout in the Personal Accomplishment dimension by 23.34% compared to other factors. The application of cluster analysis methodology revealed interesting results: four distinct clusters differed in terms of working factors, intolerance to uncertainty, and coping style. According to regression analysis, the most significant predictors of burnout were emotional-oriented coping and tolerance to uncertainty. The avoidance strategy demonstrated a specific coping function within the Armed Force, distinct from other populations. This study demonstrated that the most effective strategies for preventing burnout are task-oriented coping and tolerating uncertainty. These results implied specific training focusing on the competences could prevent burnout.

**Keywords** Burnout · Tolerating Uncertainty · Military · Coping · COVID-19

## Introduction

During the COVID-19 pandemic, most states mobilized some level of military capability in the months that followed the WHO's classification of a Public Health Emergency of International Concern. In the midst of national responses, the military assumed a wide range of duties. Given the great need to control and implement new intervention plans, many countries required the support of military forces in order to support civilian ones.

## The contribution of the Italian Armed Forces in the pandemic

The Italian armed forces played a crucial role in supporting national health during the COVID-19 pandemic. Their contributions included deploying military medical personnel, establishing field hospitals, providing military health facilities for patient reception, transporting medical supplies, and assisting maintaining public safety. These support activities were carried out in accordance with the specific tasks assigned to the Armed Forces by Law No. 331 of November 14, 2000. Article 1 paragraph 5 of the law states, “the AF contribute to the safeguarding of free institutions and perform specific tasks in circumstances of public calamity and other cases of the extraordinary emergency.” By virtue of the aforementioned law with the

Extended author information available on the last page of the article

resolution of the council of ministers of January 31, 2020 (OJ No. 26 of 1-2-2020), by which the state of emergency was declared, the AFs took the field together with the civil defense to support the population for the health emergency by deploying their own assets and personnel.

According to the different phases of the pandemic, military activities have adapted to the different needs of the country by the Italian Government (Law 14-2000 n. 331, 2000). During this health emergency, the Italian Armed Forces provided the country with military personnel, means, and specialized infrastructure (NATO, 2020). In October 2020, the Italian defense launched a new operation called, “Operation Igea,” in support of the population. In February 2021, the vaccination campaign was guided by a military expert in logistics, Special Commissioner for the COVID-19 emergency, General Paolo Francesco Figliuolo. The military further conducted operation EOS to vaccinate the population. They were the ideal solution to implement the national operation for managing the COVID-19 pandemic due to their unique training and constant level of alertness and readiness for sudden changes (EU Parliament, 2020; Popescu, 2020; Marrone, 2020). As indicated in an international review on military personnel and COVID-19, the incidence of SARS-CoV-2 infection among Ministry of Defence (MoD) military and civilian personnel during the initial spread of the pandemic was one-third higher than all cases of infectious disease reported to the Defense Epidemiological Observatory (DEO) in the past decade (Lastilla et al., 2020).

Despite several studies that have focused on the well-being of healthcare workers (such as physicians, nurses, etc.), who were considered to be the most involved community members in the treatment, diagnosis, and care of SARS-CoV-2 patients, very few studies explored the psychophysical well-being of military personnel, and the available research has concentrated on the organizational aspects of the military's role in the COVID-19 epidemic (Koop et al., 2020). In Italy, Di Nunno et al. (2020), explored cutaneous manifestations in a military COVID hub, describing a high rate of dermatological pathologies in civilians and military personnel.

### **Burnout in the armed forces facing the global pandemic**

According to Pan et al. (2022), during the COVID-19 outbreak in China, military healthcare workers were found to exhibit a high rate of depression, generalized anxiety, and somatic symptoms. Similar to healthcare workers, members of the military experienced stressful professional events, an increased workload, a reduced quality of work, and social isolation, all of which contribute to an increased risk of burnout. Burnout is a work-related

strain characterized by exhaustion (i.e., the depletion of one's emotional and physical resources), depersonalization (i.e., the negative detachment from work), and reduced efficacy (i.e., the perception of one's lack of productivity and achievement) due to repeated exposure to stressors at work (Maslach et al., 2001). A systematic review of the literature (Sharifi et al., 2021) on burnout among healthcare workers burnout during COVID-19 indicated a high prevalence of burnout within this category (40–50%). This was associated with organizational factors, such as changes in work shifts or extended working hours (Kamal et al., 2020), as well as demographic factors like age and work experience (Wan et al., 2022). The main studies on military personnel and burnout in crisis situations have predominantly focused on veterans (Hill et al., 2021). However, a study specifically addressing Spanish active military personnel during the pandemic identified elevated levels of burnout in emotional exhaustion (53.8%), depersonalization (58.0%), and a lack of personal accomplishment (46.3%) (Gómez-Galán et al., 2020).

Burnout appears to be significantly impacted by individual psychological features. Recent studies have established a strong connection between burnout syndrome and psychological aspects, indicating a direct link between burnout and depression. Specifically, the dimension of emotional exhaustion demonstrates a robust correlation with depressive psychological dimensions (Di Monte et al., 2020; Bianchi et al., 2021a, b). Another study focused on examining the role of coping and resilience strategies in either contributing to or preventing mental health issues and burnout (Di Trani et al., 2022).

### **Coping and individual factors in relation to burnout**

Coping is defined as cognitive and behavioral efforts to manage specific internal and/or external demands that are appraised as taxing or exceeding the person's resources (Lazarus & Folkman, 1984). When a difficult situation's demands outweigh an individual's capacity, coping mechanisms are employed. These tactics involve behavioral and cognitive endeavors that seek to lessen stress and/or support a person in tolerating particular internal and/or external demands. To deal with stress, a person may employ a variety of adaptive and maladaptive coping mechanisms (Sandn & Chorot, 2003). Direct or action-focused coping (i.e., concentrating on changing the source of stress and solving problems) and indirect avoiding or emotion-focused coping (i.e., concentrating on controlling the emotional response to stress, avoiding the problem by engaging in other distracting activities, and looking for social support strategies) are different types of coping strategies. Different types of coping

mechanisms were identified by Endler and Parker (1994): task-, emotion-, and avoidance- oriented coping. According to several studies (Jaracz et al., 2005; Howlett et al., 2015; Rodriguez-Rey et al., 2019), task-oriented coping strategies are associated with reduced burnout among healthcare professionals, whereas emotion-oriented coping tends to correlate with increased burnout. Studies on coping mechanisms during COVID-19 show that emotional coping is linked to an increase in anxious and depressive symptoms, likely as a result of the stressful event's unpredictable character and the high emotional response (Mariani et al., 2020). Di Monte et al. (2020) confirmed these findings in healthcare workers, particularly, general practitioners, during the COVID-19; they found that emotional coping was positively associated with emotional exhaustion.

Furthermore, one of the main characteristics of the COVID-19 pandemic was unpredictability, and some studies investigated the impact that “intolerance of uncertainty” had on burnout during this time. Intolerance of uncertainty is defined as the tendency to respond negatively to uncertain events and situations in cognitive, emotional, and behavioral terms (Buhr & Dugas, 2002), and it has been linked to anxiety, stress, and emotional exhaustion (Carleton et al., 2012). During COVID-19, some studies showed that the intolerance of uncertainty played an important role. In the Zhao et al. (2022) study, it was found that the intolerance of uncertainty mediated the effects of technological stress on emotional exhaustion. Additionally, Di Trani et al. (2021) demonstrated the moderating effect of this construct on the relationship between resilience and burnout in healthcare workers. Furthermore, Di Trani et al. (2022) demonstrated that individual levels of resilience, the ability to tolerate uncertainty, and the employment of task-oriented coping were significant factors associated with lower burnout levels in Italian anesthesiologists during COVID-19 pandemic.

The main aim of the present study was to investigate burnout among the Italian Military Force during the COVID-19 pandemic for the first time. This study encompassed all military personnel active during the pandemic, extending beyond the scope of military healthcare workers.

The first aim of this study was to explore the presence of burnout levels and to produce specific profiles related to burnout dimensions, through cluster analyses. A further aim was to identify the psychological, demographic, and occupational factors that predict elevated levels of burnout within this population during the COVID-19 pandemic.

## Materials and methods

### Participants

A total of 4409 Italian Service members (4046 males, 363 females) took part in this study. The participants included personnel of Italian Army, Navy, Air Force, and Carabinieri Corp (Italian Military Police). All participants were between the ages of 18 and 65 (mean age 46.02; Standard Deviation = 18.21) and were working at the time of the COVID-19 lockdown (for sociodemographic distribution, see Table 1).

### Procedure

Self-report questionnaires were made available online through *Lime Survey*, an online survey tool that consented, in compliance with the privacy policy General Data Protection Regulation, to store securely data in a Defense server under the responsibility of the Command of Web Operations. The General Inspectorate of Military Health (IGESAN) and the Armed Forces disclosed, by email and via institutional websites. The invitation was sent to all military and civil employees to take part in the study after approving the research protocol. The email requested their participation to explore Burnout and Coping strategies during Pandemic COVID-19 period. Before completing the questionnaires, participants voluntarily agreed and filled out the informed consent and privacy policy disclosure forms. Data was collected anonymously. The study was carried out in accordance with the code of ethics of the World Medical Association (Declaration of Helsinki) for experiments involving humans. Ethical approval was granted by the ethics committee of the University Department.

### Measures

#### Socio-demographic questionnaire

The self-administered questionnaire collected data on multiple variables, including age, years of work experience, and the number of children.

#### Maslach burnout inventory

The questionnaire adopted in this study to measure burnout is the Italian version of the Maslach Burnout Inventory (MBI; Sirigatti & Stefanile, 1993; Maslach et al., 1986), composed of 22 items on a Likert scale ranging from 0 (never) to 6 (daily). It defines burnout in three dimensions:

**Table 1** Descriptive analysis

Sociodemographic Variables	Mean	SD	
Age	46,02	18,21	
	%	N	
Gender			
Female	8,2	363	
Male	91,8	4046	
Marital status			
Single	12,1	535	
Cohabitant	10,9	479	
Married	70,2	3094	
Divorced	6,4	282	
Widower	0,4	19	
Educational Level			
Middle school	8,2	363	
High school	52,7	2323	
Bachelor’s degree	14,2	626	
Master’s degree	13,9	611	
Master	9,2	404	
Postgraduate	1,4	62	
PhD	0,5	20	
Rank			
Officers	30,2	1331	
Warrant Officer/Non-commissioned officers (NCO)	48,3	2130	
OR4-OR3 Ranked Soldiers (permanent service)	15,1	665	
OR1-OR2 Troops (Volunteer under fixed-term contract 1–4 years)	2,5	112	
COVID operation			
Yes	13,9	613	
No	86,1	3796	
Health workers			
Yes	3,9	172	
No	96,1	4237	
Years of Work Experience	25,13	8,83	
Level of Burnout	Low Burnout Cutoff < 17 %	Moderate Burnout Cutoff 18–29 %	High Burnout Cutoff > 30 %
MBI Emotional Exhaustion	66,85% Cutoff < 5	16,77% Cutoff 6–12	16,38% Cutoff > 12
MBI Depersonalization	73,69% Cutoff > 40	17,94% Cutoff 36–39	8,37% Cutoff < 36
MBI Personal Accomplishment	59,81%	16,85%	23,34%

*MBI* Maslach Burnout Inventory

Emotional Exhaustion (EE); Depersonalization (DP); and Personal Accomplishment (PA). The EE represents the depletion of one's emotional resources (for example, “I feel used up at the end of the workday”). The dimension of DP brings to the surface, a view of co-workers and clients as dehumanized objects instead of people (for example, “I feel like I treat some patients as if they were impersonal

objects”). Finally, the PA reflects feelings of competence, productivity, and successful achievement in one’s work (for example, “I feel like I’m positively influencing other people’s lives through my work”). Only in this dimension did a high score indicate low levels of burnout. In this study, Cronbach’s alpha was satisfactory for all subscales: EE ( $\alpha$ : 0.92), DP ( $\alpha$ : 0.80), PA ( $\alpha$ : 0.79).

## Coping inventory for stressful situations

The Coping Inventory for Stressful Situations (CISS) (Endler & Parker, 1994) is a questionnaire consisting of 48 items, measured on a Likert scale ranging from 1 (not at all) to 5 (very much). This questionnaire was modified to be distributed to the Italian population (Sirigatti & Stefanile, 2009) and can bring up three basic dimensions: *task-*, *emotion-*, and *avoidance-oriented coping*. Task-oriented coping emphasizes an action oriented to the task and attempts to solve the problem. Emotion-oriented coping involves the use of emotional strategies to reduce stress, where there are emotional responses (getting angry, becoming tense), and in some cases, the reaction increases stress. Avoidance-oriented coping describes activities and cognitive changes aimed at avoiding the stressful situation. The range of possible scores of each subscale ranges from 16 to 80, with higher scores indicating the greater use of a given coping style. Cronbach's alpha coefficient was 0.88 for Task-oriented coping, 0.90 for Emotion-oriented coping, and 0.85 for Avoidance-oriented coping.

## Intolerance of uncertainty scale short form

The Italian version of the Intolerance of Uncertainty Scale Short Form (IUS; Lauriola et al., 2016), is composed of 12 items and measured on a Likert scale ranging from 1 (not at all agree) to 5 (totally agree). In this questionnaire, uncertainty is conceptualized as a psychological stressor that can threaten an individual's capacity to cope effectively with situations when there is little or no information available. The IUS has two scales: prospective IU and inhibitory IU. The prospective scale measures both the desire for predictability and an individual's active engagement in seeking information to increase certainty. The inhibitory scale reflects avoidance of uncertainty and paralysis in the face of uncertainty. In this study, Cronbach's alpha was 0.86 for prospective IU and 0.91 for inhibitory IU.

## Data analysis

The number of individuals included in the was determined through a priori power analysis performed using G\*Power 3.1.9.2 (Duusseldorf, Germany). A minimum of 1145 participants (total sample  $n$ ) was estimated to ensure adequate statistical power (0.95) for running multiple linear regression analysis, which included 8 predictors with a minimum effect size  $f$  of 0.02 (small), assuming an  $\alpha$  of .05. The actual sample size for the multiple regression analyses was 4409 participants, resulting in a post-hoc observed statistical power of 0.99. Regarding the investigation of differences in psychological dimensions between the 4 clusters emerged, a post-hoc analysis revealed that 4409 subjects

allowed for the detection of findings with an effect size  $f$  of 0.10, a power of, and assuming an  $\alpha$  of .05.

The statistical analyses were conducted using the Statistical Package for Social Science (SPSS) version 25 for Windows (IBM, Armonk, NY, USA). Data was reported as frequencies and percentages for discrete variables, and as means and standard deviations for continuous variables. In order to integrate the three burnout factors, we used a Cluster Analysis method. We applied two parallel methods; firstly, a hierarchical Cluster Analysis using Ward's method was run. Then, a squared Euclidean distance was used to determine profiles of participants according to their  $z$  scores on each subscale of the adopted MBI (Hair et al., 2009; Berjot et al., 2017). Using a Bayesian Index Criterion (Schwarz, 1978) confirmed the four-cluster solution. The second method involved a k-mean Cluster Analysis run on the number of clusters emerging from the hierarchical Cluster Analysis (Blashfield & Aldenderfer, 1988; Ransom & Fisher, 1995) to generate charts and individual distribution into the clusters.

The groups identified by the Cluster Analysis were compared based on sociodemographic variables, work features, coping styles, and intolerance of uncertainty through One-Way ANOVAs for continuous variables and through Chi-square tests for discrete ones. Bonferroni's post hoc was applied to the continuous variables that exhibited significant difference among the four clusters.

Additionally, Pearson's correlations were conducted to examine the relationship between burnout dimensions and psychological and professional characteristics. Multiple regression analyses were then performed to identify potential predictors of the burnout dimensions. Each of the three components of burnout served as a dependent variable, with variables demonstrating significance in the correlation analysis included as predictors in these regression analyses.

In all performed analyses, a significance criterion equal to, or smaller than 0.05, was used to determine statistical significance.

## Results

### Burnout levels description based on the MBI cut-off

The primary goal of this study was to assess burnout among the Italian military during the COVID-19 epidemic. Table 1 provides an overview of burnout levels based on the MBI cut-off (Maslach et al., 1986). Despite the challenging circumstances of the COVID-19 pandemic, the overall percentage of burnout levels surpassing the cut-off is relatively low. The PA score stands out as the most critical aspect, with a percentage of 23.34%, compared to EE at 16.6% and DP 8.37% finding (Table 1) ( $\chi^2 = 27.082, df: 4, p < 0.01$ , adapted residual  $> 3$ ).



### Hierarchical cluster analysis and one-way ANOVAs

Following the initial comparison to the MBI cut-off, we aim to provide a different prospective on burnout levels through a cluster analysis, facilitating the integration of the three burnout variables into specific burnout profiles (Table 2). Initially, a hierarchical Cluster Analysis using Ward’s method was conducted, utilizing squared Euclidean distance to establish profiles based on participants’ z scores on each MBI subscale (Hair et al., 2009; Berjot et al., 2017). The hierarchical Cluster Analysis proposed a four-cluster solution, confirmed by examining the dendrogram. The Bayesian Index Criterion (Schwarz, 1978) validated the four-cluster solution, exhibiting the lowest value for this arrangement. In the second step, to affirm the four-cluster solution, a k-mean Cluster Analysis was executed based on the clusters identified in the hierarchical Cluster Analysis (Blashfield & Aldenderfer, 1988; Ransom & Fisher, 1995).

As shown in Fig. 1 and Table 2 for centroid scores of each cluster: Cluster 1 (labeled “Emotional Reserve” profile,  $N=879$ ), included military personnel with medium-high levels of emotional exhaustion, medium depersonalization, and personal accomplishment; Cluster 2 (“Resilience” profile,  $N=2440$ ) included individuals with concurrently low levels of emotional exhaustion and depersonalization and high levels of personal accomplishment; Cluster 3 (“Demand for Accreditation” profile,  $N=734$ ) was characterized by moderate levels of emotional exhaustion and depersonalization, coupled with very low levels of personal accomplishment; and Cluster 4 (“Demand for Vigor” profile,  $N=356$ ) was characterized by high levels of emotional exhaustion and depersonalization and a low level of personal accomplishment.

Finally, we ran a series of One-Way ANOVAs with clusters as independent variables and each CISS and IU dimension as dependent variables. As shown in Table 2, significant differences surfaced across all variables. Bonferroni’s post hoc analysis highlighted significant differences between clusters on all psychological variables, except between Cluster 3 and 4 on the Avoidance CISS ( $p > 0.05$ ). The Reliance cluster is characterized by task-oriented coping and lower intolerance to uncertainty.

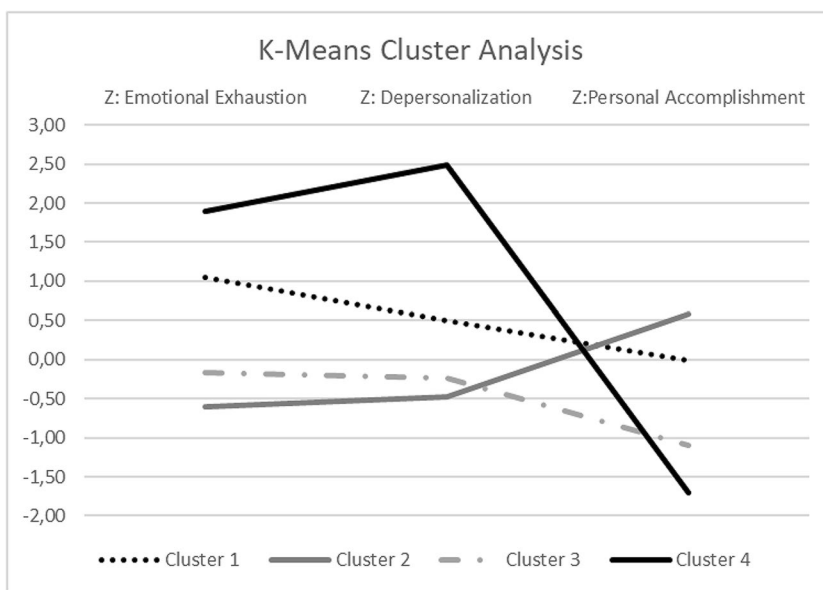
When comparing clusters and demographics (see Table 3), no differences based on age were evident. However, notable differences did emerge based on gender; specifically, Cluster 2 (Resilience) consists of fewer women and more men than the other clusters ( $p < 0.05$ ). There are some differences between the clusters regarding working variables: Cluster 2 is composed of more officials and fewer graduates; Cluster 3 (Demand for Accreditation) has fewer officers; and Cluster 4 (Demand for Vigor) has more graduates ( $p < 0.05$ ). Moreover, there are significant differences between clusters in terms of years of work

**Table 2** Mean scores and standard deviations for each dimension of the MBI scale according to clusters

	Cluster 1- Emotional Reserve		Cluster 2- Resilience		Cluster 3- Demand for Accreditation		Cluster 4- Demand for Vigor		F	P
	N	%	N	%	N	%	N	%		
Z- scoring Emotional Exhaustion	0,49		-0,61		-0,24		2,49			
Z- Scoring Depersonalization	-0,05		0,58		-1,09		-1,71			
Z- Scoring Personal Accomplishment										
Anova one-way Clusters and Psychological Variables										
CISS_Task	58,01	9,77	61,93	9,1	54,03	9,85	49,05	12,39	267,27	< 0,001
CISS_Emootional	32,53	9,04	23,68	6,15	29,01	8,79	42,73	12,5	751,17	0,000
CISS_Avoidance	40,36	9,62	41,99	10,47	38,46	9,37	37,34	9,31	39,07	< 0,001
IUS_Total	27,09	7,45	21,83	6,2	25,29	8,01	33,9	10,51	353,54	< 0,001

CISS Coping Inventory for Stressful Situations; IUS Intolerance Uncertainty

**Fig. 1** Plot of means for each variable according to clusters. Cluster 1, Emotional Reserve; Cluster 2, Resilience; Cluster 3, Demand for Accreditation; Cluster 4, Demand for Vigor



**Table 3** One-way ANOVAs and Chi-square test between cluster profiles on sociodemographic and work variables

	Cluster 1 Emotional Reserve		Cluster 2 Resilience		Cluster 3 Demand for Accreditation		Cluster 4 Demand for Vigor		F	P
	M	SD	M	SD	M	SD	M	SD		
Age	45,82	18,94	46,30	8,17	46,24	36,18	44,22	8,03	1.41	0.237
Years of work	24,79	8,73	25,58	8,83	24,30	8,81	23,85	8,93	8.32	<0.001
	N	%	N	%	N	%	N	%	X <sup>2</sup>	P
Male	792	90,1	2271	93,1	657	89,5	326	91,6	13.70	0.003
Female	87	9,9	169	6,9	77	10,5	30	8,4		
Officers	261	29,7	820	33,6	162	22,1	88	24,7	59.01	<0.001
No-commissioned officers (NCO)	422	48,0	1185	48,6	358	48,8	165	46,3		
OR4-OR3 Ranked Soldiers	142	16,2	309	12,7	142	19,3	72	20,2		
OR1-OR2 Troops	21	2,4	54	2,2	26	3,5	11	3,1		
Healthcare workers	39	4,4	92	3,8	28	3,8	13	3,7	0.85	0.836
No healthcare workers	840	95,6	2348	96,2	706	96,2	343	96,3		
COVID-19 mission	135	15,4	349	14,3	82	11,2	47	13,2	6.60	0.086
No COVID-19 mission	744	84,6	2091	85,7	652	88,8	309	86,8		

( $p < 0.001$ ): Cluster 2 has more years of work than the other clusters, while Cluster 4 has fewer work years than the other clusters.

**Regression analysis**

Three multiple linear regression models were executed, employing MBI Emotional Exhaustion, Depersonalization, and Personal Accomplishment dimensions, respectively, as dependent variables and incorporating psychological and sociodemographic/occupational variables as independent ones.

The first linear regression model explained that 33% of BMI Emotional Exhaustion scores ( $R^2 = 0.323$ ; adjusted  $R^2 = 0.322$ ;  $p < 0.000$ ), with significant independent variables being Rank (beta = -0.639  $p < 0.005$ ), years of work (beta = -0.091,  $p.001$ ), CISS task (beta = -0.110,  $p < 0.001$ ), CISS emotional (beta = 0.685,  $p < 0.001$ ), CISS avoidant (beta = -0.172,  $p < 0.001$ ), and intolerance of uncertainty (beta = 0.206,  $p < 0.001$ ), while age and gender were not found to be significant.

The second linear regression model accounted for 40% of BMI Depersonalization scores ( $R^2 = 0.400$ ; adjusted  $R^2 = 0.399$ ;  $p < 0.000$ ). Significant independent variables

included gender ( $\beta = -1.08$ ,  $p < 0.001$ ), years of work ( $\beta = -0.061$ ,  $p < 0.001$ ), CISS task ( $\beta = -0.051$ ,  $p < 0.001$ ), CISS emotional ( $\beta = 0.257$ ,  $p < 0.001$ ), CISS avoidant ( $\beta = -0.038$ ,  $p < 0.001$ ), and intolerance of uncertainty ( $\beta = 0.062$ ,  $p < 0.001$ ), instead age and Rank were not found to be significant.

The third linear regression model explained 37% of BMI Personal Accomplishment scores ( $R^2 = 0.367$ ; adjusted  $R^2 = 0.365$ ;  $p < 0.000$ ). Significant independent variables included Rank ( $\beta = -0.359$ ,  $p < 0.01$ ), years of work ( $\beta = 0.093$ ,  $p < 0.001$ ), CISS task ( $\beta = 0.231$ ,  $p < 0.001$ ), CISS emotional ( $\beta = -0.255$ ,  $p < 0.001$ ), CISS avoidant ( $\beta = 0.115$ ,  $p < 0.001$ ), and intolerance of uncertainty ( $\beta = -0.060$ ,  $p < 0.001$ ), while age and gender were not found to be significant.

## Discussion

In this study, the burnout rates among members of the Italian military during the COVID-19 pandemic were explored. One of the aims of this research was to identify risk and/or protective factors associated with burnout rates in this population.

Our results indicate that the MBI Burnout cut-off in the military population does not reveal any specific critical issues compared to general cut-offs. However, relying solely on cut-off analysis may overlook opportunities to enhance the occupational well-being of a population regularly exposed to stress and challenging tasks. Recent studies have introduced a methodology integrating the three factors of burnout through cluster analysis (Berjot et al., 2017; Di Monte et al., 2020; Di Trani et al., 2021; Frigo et al., 2022). This approach enables the development of qualitative profiles by integrating the three burnout factors. In the military population, we identified four groups. The largest, constituting 55.34% of the sample, is cluster 2, labeled "Resilience," characterized by low levels of depersonalization and emotional exhaustion and high levels of personal accomplishment, indicating a low risk of burnout. The results indicate that this cluster differs from others by having fewer women, more individuals in managerial positions, and longer work experience. This result aligns with previous research suggesting that leadership plays a role in preventing mental health issues (Adler et al., 2022). On the other hand, the remaining clusters identify specific needs that may highlight potential risk factors. Cluster No. 4, named "Demand for Vigor," representing 8.07% of the population, reveals an immediate need for emotional and psychological resource enhancement (Clatworthy et al., 2005). This group has significantly fewer years of work, consistent with recent studies during the COVID-19 pandemic. Greater work experience has been shown to be a protective factor against job stress

(Di Trani et al., 2021; Matsuo et al., 2020). This implies that years of work experience correlate with burnout. It is likely that, during the pandemic, work experience served as a protective factor against burnout. The two emerging clusters, Cluster 1, ("Emotional Reserve") and Cluster 3 ("Demand for Accreditation") account for 19.94% and 16.65%, respectively. Cluster 1, "Emotional Reserve," reveals two critical points: energy stress and lower personal gratification. This profile suggests an investment of resources that is not sufficiently accompanied by gratification, as if the effort is not sufficiently targeted. Cluster 3, "Demand for Accreditation," needs further attention due to low scores in emotional exhaustion, depersonalization, and personal fulfillment. In other words, this type of approach allows for personalization and targeting of possible career and educational development.

Protective factors against the risk of burnout include years of experience, a consistent result from studies during the pandemic. Hierarchical leadership positions enhance the ability to deal with uncertainty (Di Monte et al., 2020; Di Trani et al., 2021). Finally, it is consistent with the literature that the task-oriented coping strategies are closely linked to compensating for burnout. This is also shown in the three regression models, where tolerating uncertainty and coping with stress are the main variables explaining burnout in all its dimensions. Unexpectedly, the research on military personnel highlights how the avoidant coping strategy is negatively correlated with emotional exhaustion and depersonalization, while positively correlated with personal gratification. Its positive function on levels of burnout is also confirmed in the regression models.

In all the linear regression analysis models, age did not show influence on all three MBI factors, Gender is strongly related to MBI Depersonalization, and Rank played a different role in the three factors: protective for EE, no influence in DE, and a negative role for PA. Psychological variables played a relevant role in all three factors, with emotional-oriented coping style being the strongest predictor of burnout. It had a direct relationship with emotional exhaustion and depersonalization, and in the inverse relationship with personal accomplishment. On the contrary, the role of avoidance-oriented coping is noteworthy; it has a positive relation to personal accomplishment and a negative relation to emotional exhaustion and depersonalization. Intolerance of uncertainty contributed to all three MBI factors.

The literature has highlighted a correlation between the avoidance strategy and higher levels of burnout in the health professions (Polman et al., 2010; Gibbons, 2010; Antoniou et al., 2013). However, in this sample of military force, the avoidance strategy seems to function as a preventive strategy that likely mitigates the effects of information uncertainty. This result on the avoidance strategy prompts reflections on



the specific training of military personnel, their hierarchical organizational level, and information management.

Besides years of experience, another factor impacting burnout is gender. Our results suggest that the female gender has a greater influence on the Depersonalization factor. This indicated a need for heightened attention to gender differences in emotional reactions.

The present study has several inherent limitations that are acknowledged. First, the use of self-report measures through an online platform may have introduced potential biases that could impact the validity of the data. Second, the absence of a control group is a limitation, and future investigations could benefit from including a control group, such as emergency management personnel from other sectors, to facilitate comparative analyses and identify specific stress reaction patterns in different groups. In addition, long-term follow-up studies would be valuable to collect further data on the health status of military members and verify the predictive role of burnout on their long-term psycho-physical health.

## Conclusion

The military, accustomed to working in emergency conditions with a focus on the present moment and high levels of readiness, may have a more fragmented relationship with colleagues and the organization, organized based on specific intervention phases. Task oriented coping and tolerance of uncertainty emerge as strong in preventing mental illness and burnout in this population. This highlights the importance of implementing psychological programs aimed at developing these protective capabilities among military professionals, with the broader goal of preventing burnout. Further, recognizing and providing visibility to achieved objectives are crucial for personal gratification, serving as an affective recharge.

**Author contribution** All the authors confirm contribution to the paper as follows:

Conceptualization of the study: Mariani R., Murgia F., Deiana S., Sebastiani N., Di Trani M.

Investigation (collect data): Ravecca F., Fanelli G., Cippitelli F., Trabucco Aurilio P.

Formal analysis: Foglia E., Di Monte C., Mariani R.

Supervision: Tambelli R.,

Writing — original draft: Mariani R., Di Monte C., Renzi A., Di Trani M.

Writing — review and editing: Mariani R., Murgia F., Di Monte C.

All authors reviewed the results and approved the final version of the manuscript.

**Funding** Open access funding provided by Università degli Studi di Roma La Sapienza within the CRUI-CARE Agreement. This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

**Data availability** Raw data were generated at IGESAN service survey. Derived data supporting the findings of this study are available from the corresponding author RM on request.

## Declarations

**Ethical approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Informed consent** Informed consent was obtained from all individual participants included in the study.

**Conflict of interest** No potential conflict of interest was reported by the authors.

**Open Access** This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

## References


- Adler, A. B., Gutierrez, I. A., Gomez, S. A., Beymer, M. R., Santo, T. J., Thomas, J. L., ... & Quartana, P. J. (2022). US soldiers and the role of leadership: COVID-19, mental health, and adherence to public health guidelines. *BMC Public Health*, 22(1), 1–9. <https://doi.org/10.1186/s12889-022-13345-z>
- Antoniou, A. S., Ploumpi, A., & Ntalla, M. (2013). Occupational stress and professional burnout in teachers of primary and secondary education: The role of coping strategies. *Psychology*, 4(03), 349. <https://doi.org/10.4236/psych.2013.43A051>
- Berjot, S., Altintas, E., Grebot, E., & Lesage, F. X. (2017). Burnout risk profiles among French psychologists. *Burnout Research*, 7, 10–20. <https://doi.org/10.1016/j.burn.2017.10.001>
- Bianchi, R., Manzano-García, G., & Rolland, J.-P. (2021a). Is Burnout primarily linked to work-situated factors? A relative weight analytic study. *Frontiers in Psychology*, 11, 623912. <https://doi.org/10.3389/fpsyg.2020.623912>
- Bianchi, R., Verkuilen, J., Schonfeld, I. S., Hakanen, J. J., Jansson-Fröjmark, M., Manzano-García, G., Laurent, E., & Meier, L. L. (2021b). Is burnout a depressive condition? A 14-sample meta-analytic and bifactor analytic study. *Clinical Psychological Science*, 9(4), 579–597. <https://doi.org/10.1177/2167702620979597>
- Blashfield, R. K., & Aldenderfer, M. S. (1988). The methods and problems of cluster analysis. In J. R. Nesselrode & R. B. Cattell (Eds.), *Handbook of multivariate experimental psychology* (2nd ed., pp. 447–473). Plenum Press. [https://doi.org/10.1007/978-1-4613-0893-5\\_14](https://doi.org/10.1007/978-1-4613-0893-5_14)
- Buhr, K., & Dugas, M. J. (2002). The intolerance of uncertainty scale: Psychometric properties of the English version. *Behaviour Research and Therapy*, 40(8), 931–945. [https://doi.org/10.1016/S0005-7967\(01\)00092-4](https://doi.org/10.1016/S0005-7967(01)00092-4)

- Carleton, R. N., Mulvogue, M. K., Thibodeau, M. A., McCabe, R. E., Antony, M. M., & Asmundson, G. J. (2012). Increasingly certain about uncertainty: Intolerance of uncertainty across anxiety and depression. *Journal of Anxiety Disorders*, 26(3), 468–479. <https://doi.org/10.1016/j.janxdis.2012.01.011>
- Clatworthy J., Buick D., Hankins M., Weinman J., Horne R. (2005). The use and reporting of cluster analysis in health psychology: A review. *British Journal of Health Psychology*, 10(Pt 3):329–58. <https://doi.org/10.1348/135910705X25697>
- Di Monte, C., Monaco, S., Mariani, R., & Di Trani, M. (2020). From resilience to burnout: psychological features of Italian general practitioners during COVID-19 emergency. *Frontiers in Psychology*, 2476. <https://doi.org/10.3389/fpsyg.2020.567201>
- Di Nunno, D., Laghi, A., Troiani, G., Marseglia, B., Anelli, L., Farina, E., ... & Astorino, S. (2020). Cutaneous manifestations in an Italian military COVID hub. *Giornale Italiano di Dermatologia e Venereologia*, 155(5):632–635. <https://doi.org/10.23736/S0392-0488.20.06735-8>
- Di Trani, M., Mariani, R., Ferri, R., De Berardinis, D., & Frigo, M. G. (2021). From resilience to burnout in healthcare workers during the COVID-19 emergency: The role of the ability to tolerate uncertainty. *Frontiers in Psychology*, 12, 646435. <https://doi.org/10.3389/fpsyg.2021.646435>
- Di Trani, M., Mariani, R., Renzi, A., De Berardinis, D., Rossi, M., Tritapepe, L., Petrini, F., & Frigo, M. G. (2022). COVID-19 pandemic burnout in an Italian sample of anaesthesiologists: Coping strategies, resilience and the capability of tolerating the uncertainty as preventing factors. *Psychology Health & Medicine*, 28(3), 648–659. <https://doi.org/10.1080/13548506.2022.2119484>
- Endler, N. S., & Parker, J. D. A. (1994). Assessment of multidimensional coping: Task, emotion, and avoidance strategies. *Psychological Assessment*, 6(1), 50–60. <https://doi.org/10.1037/1040-3590.6.1.50>
- Frigo, M. G., Petrini, F., Tritapepe, L., Rossi, M., De Berardinis, D., Renzi, A., Mariani, R., & Di Trani, M. (2022). Burnout in Italian anesthesiologists and intensivists during the COVID-19 pandemic: a national survey. *Minerva Anestesiologica*, 88, 000–000. <https://doi.org/10.23736/S0375-9393.22.16737-4>
- Gibbons, C. (2010). Stress, coping and burn-out in nursing students. *International Journal of Nursing Studies*, 47(10), 1299–1309. <https://doi.org/10.1016/j.ijnurstu.2010.02.015>
- Gómez-Galán, J., Lázaro-Pérez, C., Martínez-López, J. Á., & Fernández-Martínez, M. D. M. (2020). Burnout in Spanish security forces during the COVID-19 pandemic. *International Journal of Environmental Research and Public Health*, 17(23), 8790. <https://doi.org/10.3390/ijerph17238790>
- Hair, J. F., Jr., Black, W. C., Babin, B. J., & Anderson, R. E. (2009). *Multivariate Data Analysis* (7th ed., p. 761). Upper Saddle River: Prentice Hall.
- Hill, M. L., Nichter, B., Na, P. J., Norman, S. B., Morland, L. A., Krystal, J. H., & Pietrzak, R. H. (2021). Mental health impact of the COVID-19 pandemic in U.S. military veterans: a population-based, prospective cohort study. *Psychological Medicine*. <https://doi.org/10.1017/S0033291721002361>
- Howlett M, Doody K, Murray J, LeBlanc-Duchin D, Fraser J, & Atkinson P. R. (2015). Burnout in emergency department healthcare professionals is associated with coping style: a cross-sectional survey. *Emergency Medicine Journal*, 32(9), 722–727. <https://doi.org/10.1136/emmermed-2014-203750>
- Jaracz, K., Górna, K., & Konieczna, J. (2005). Burnout, stress and styles of coping among hospital nurses. *Roczniki Akademii Medycznej w Białymstoku*, 50(Suppl 1), 216–9.
- Kamal, A. H., Bull, J. H., Wolf, S. P., Swetz, K. M., Shanafelt, T. D., Ast, K., ... & Sinclair, C. T. (2020). Prevalence and predictors of burnout among hospice and palliative care clinicians in the US. *Journal of pain and symptom management*, 59(5), e6–e13. <https://doi.org/10.1016/j.jpainsymman.2019.11.017>
- Koop, O., Polimac, D., Carey, L., & Drakopoulos, E. (2020). Military personnel and COVID-19: An exploratory scoping review. *La Trobe Report*. <https://doi.org/10.26181/5fbc73d41425c>
- Lastilla, M., Panfili, P., Vento, R., D'Ercole, M., & Fallo, S. (2020). Analysis of Service 'Carabinieri corps' covid-19 epidemiological data. *Giornale di Medicina Militare*, 170(2), 103–128.
- Lauriola, M., Mosca, O., & Carleton, R. N. (2016). Hierarchical factor structure of the Intolerance of Uncertainty Scale short form (IUS-12) in the Italian version. *TPM-Testing, Psychometrics, Methodology in Applied Psychology*, 23(3), 377–39.
- Law 14 Nov. 2000 n 331. Gazzetta Ufficiale n 269 del 17/11/2000. [https://www.gazzettaufficiale.it/atto/serie\\_generale/caricaDettAglioAtto/originario?atto.dataPubblicazioneGazzetta=2000-11-17&atto.codiceRedazionale=000G0367](https://www.gazzettaufficiale.it/atto/serie_generale/caricaDettAglioAtto/originario?atto.dataPubblicazioneGazzetta=2000-11-17&atto.codiceRedazionale=000G0367)
- Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer publishing company.
- Marrone A. (2020). The COVID-19 Pandemic and European Security: Between damages and crises. [https://d1wqxts1xzl7.cloudfront.net/62889809/iaicom201920200409-25181-1cyszodlibre.pdf?1586449910=&response-content-disposition=inline%3B+filename%3DThe\\_COVID\\_19\\_Pandemic\\_and\\_European\\_Secur.pdf&Expires=1706694549&Signature=A3t50sCUBaMoMs0-tQud-1e0RxnOsnZptMaKIUBUsg9iGMKj3-1417cATqdBO0-nqYVD RdFCPwDjnOE9HMuKBOzcU1JNymmqNKS6IrBg7V08cFrFYgB3iqZAIIOU7UWgTG2tGENtVBrqT~Q7yOJWD14bKV8JkTbXdxqAQRx8FDmaHZ1b4Y4~d~HoMTInOx9u5Udvr4H4BfJsLjflWSDSIfqX8LiYHEj~uXKzrmEEgLTkTXRe2wj3LzKAZr5Wdlm1v12X6v88F6JgXESIPIVY6DuaZf7870vWvTvtDE7eVUDKmt4F5PwEI81KlJcqpWpORP3Q6f0Ld0tJubLtx6w\\_\\_&Pair-Id=APKAJLOHF5GGSLRBV4ZA](https://d1wqxts1xzl7.cloudfront.net/62889809/iaicom201920200409-25181-1cyszodlibre.pdf?1586449910=&response-content-disposition=inline%3B+filename%3DThe_COVID_19_Pandemic_and_European_Secur.pdf&Expires=1706694549&Signature=A3t50sCUBaMoMs0-tQud-1e0RxnOsnZptMaKIUBUsg9iGMKj3-1417cATqdBO0-nqYVD RdFCPwDjnOE9HMuKBOzcU1JNymmqNKS6IrBg7V08cFrFYgB3iqZAIIOU7UWgTG2tGENtVBrqT~Q7yOJWD14bKV8JkTbXdxqAQRx8FDmaHZ1b4Y4~d~HoMTInOx9u5Udvr4H4BfJsLjflWSDSIfqX8LiYHEj~uXKzrmEEgLTkTXRe2wj3LzKAZr5Wdlm1v12X6v88F6JgXESIPIVY6DuaZf7870vWvTvtDE7eVUDKmt4F5PwEI81KlJcqpWpORP3Q6f0Ld0tJubLtx6w__&Pair-Id=APKAJLOHF5GGSLRBV4ZA)
- Mariani, R., Renzi, A., Di Trani, M., Trabucchi, G., Danskin, K., & Tambelli, R. (2020). The impact of coping strategies and perceived family support on depressive and anxious symptomatology during the coronavirus pandemic (COVID-19) lockdown. *Frontiers in Psychiatry*, 11, 587724. <https://doi.org/10.3389/fpsyg.2020.587724>
- Maslach, C., & Jackson, S. E. (1986). *Maslach burnout inventory manual* (2nd ed.). Palo Alto, CA: Consulting Psychologists Press.
- Maslach, C., Schaufeli, W. B., & Leiter, M. P. (2001). Job burnout. *Annual Review of Psychology*, 52, 397–422.
- Matsuo, T., Kobayashi, D., Taki, F., Sakamoto, F., Uehara, Y., Mori, N., & Fukui, T. (2020). Prevalence of health care worker burnout during the coronavirus disease 2019 (COVID-19) pandemic in Japan. *JAMA Network Open*, 3(8), e2017271–e2017271. <https://doi.org/10.1001/jamanetworkopen.2020.17271>
- NATO. (2020). ITA Army Response to COVID-19. <https://mlp.jallc.nato.int/iks/sharing%20public/ita-army%20resp%20to%20covid%20%28dec2020%29.pdf>. Accessed Apr 2022.
- Pan, X., Xiao, Y., Ren, D., Xu, Z. M., Zhang, Q., Yang, L. Y., ... & Bai, Y. H. (2022). Prevalence of mental health problems and associated risk factors among military healthcare workers in specialized COVID-19 hospitals in Wuhan, China: A cross-sectional survey. *Asia-Pacific Psychiatry*, 14(1), e12427. <https://doi.org/10.1111/appy.12427>
- Polman, R., Borkoles, E., & Nicholls, A. R. (2010). Type D personality, stress, and symptoms of burnout: The influence of avoidance coping and social support. *British Journal of Health Psychology*, 15(3), 681–696. <https://doi.org/10.1348/135910709X479069>
- Popescu, N. (2020). How the coronavirus threatens a geopolitical Europe, European Council on Foreign Relations, March 2020. [https://ecfr.eu/article/commentary\\_how\\_the\\_coronavirus\\_threatens\\_a\\_geopolitical\\_europe/](https://ecfr.eu/article/commentary_how_the_coronavirus_threatens_a_geopolitical_europe/). Accessed Apr 2022.

- Ransom, D. C., & Fisher, L. (1995). An empirically derived typology of families: II Relationships with adolescent health. *Family Process, 34*(2), 183–197. <https://doi.org/10.1111/j.1545-5300.1995.00183.x>
- Rodríguez-Rey, R., Palacios, A., Alonso-Tapia, J., Pérez, E., Álvarez, E., Coca, A., Mencía, S., Marcos, A., Mayordomo-Colunga, J., Fernández, F., Gómez, F., Cruz, J., Ordóñez, O., & Llorente, A. (2019). Burnout and posttraumatic stress in paediatric critical care personnel: Prediction from resilience and coping styles. *Australian Critical Care, 32*(1), 46–53. <https://doi.org/10.1016/j.aucc.2018.02.003>
- Sandín, B., & Chorot, P. (2003). Cuestionario de afrontamiento del estrés (CAE): desarrollo y validación preliminar. *Revista de Psicopatología y Psicología Clínica, 8*, 39–54.
- Schwarz, G. (1978). Estimating the dimension of a model. *The Annals of Statistics, 6*(2), 461–464. <https://doi.org/10.1214/aos/1176344136>
- Sharifi, M., Asadi-Pooya, A. A., & Mousavi-Roknabadi, R. S. (2021). Burnout among healthcare providers of COVID-19; a systematic review of epidemiology and recommendations. *Archives of Academic Emergency Medicine, 9*(1). <https://doi.org/10.22037/aaem.v9i1.1004>
- Sirigatti S., & Stefanile, C. (2009). CISS – Coping Inventory for Stressful Situation. Stanrdizzazione e validazione italiana. Firenze: Giunti O.S. Organizzazioni Speciali.
- Sirigatti, S., & Stefanile, C. (1993). Adattamento e taratura per l'Italia. In C. Maslach & S. Jackson (Eds.), *MBI Maslach Burnout Inventory* (pp. 33–42). Organizzazioni Speciali.
- EU Parliament. (2020). The role of armed forces in the fight against coronavirus. [https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/649401/EPRS\\_BRI\(2020\)649401\\_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2020/649401/EPRS_BRI(2020)649401_EN.pdf)
- Wan, Z., Lian, M., Ma, H., Cai, Z., & Xianyu, Y. (2022). Factors associated with burnout among Chinese nurses during COVID-19 epidemic: A cross-sectional study. *BMC Nursing, 21*(1), 1–8. <https://doi.org/10.1186/s12912-022-00831-3>
- Zhao, G., Zhao, R., Yan, X., Conceição, S. C., Cheng, Z., & Peng, Q. (2022). The effects of technostress, intolerance of uncertainty, and ICT competence on learning burnout during COVID-19: a moderated mediation examination. *Asia Pacific Journal of Education, 1*–19. <https://doi.org/10.1080/02188791.2022.2071835>

**Publisher's Note** Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

## Authors and Affiliations

Rachele Mariani<sup>1</sup>  · Cinzia Di Monte<sup>1</sup> · Federica Murgia<sup>2</sup> · Emanuele Foglia<sup>3</sup> · Simone Deiana<sup>4</sup> · Fabio Ravecca<sup>5</sup> · Giorgio Fanelli<sup>3</sup> · Fabio Cippitelli<sup>6</sup> · Paolo Trabucco Aurilio<sup>7</sup> · Alessia Renzi<sup>1</sup> · Renata Tambelli<sup>1</sup> · Nicola Sebastiani<sup>2</sup> · Michela Di Trani<sup>1</sup>

✉ Rachele Mariani  
Rachele.mariani@uniroma1.it

Cinzia Di Monte  
cinziadm92@hotmail.it

Federica Murgia  
federica.murgia@esercito.difesa.it

Emanuele Foglia  
emanuele.foglia@esercito.difesa.it

Simone Deiana  
simone.deiana@aeronautica.difesa.it

Fabio Ravecca  
fabio.ravecca@marina.difesa.it

Giorgio Fanelli  
giorgio.fanelli@esercito.difesa.it

Fabio Cippitelli  
fabio.cippitelli@esercito.difesa.it

Paolo Trabucco Aurilio  
paolo.trabucco@carabinieri.it

Alessia Renzi  
alessia.renzi@uniroma1.it

Renata Tambelli  
renata.tambelli@uniroma1.it

Nicola Sebastiani  
nicola.sebastiani@esercito.difesa.it

Michela Di Trani  
michela.ditrani@uniroma1.it

- Department of Dynamic and Clinical Psychology, and Health Studies, Sapienza University of Rome, Via degli Apuli 1, 00185 Rome, Italy
- General Inspectorate of Military Medical Services – Defence Chief of Staff, Rome, Italy
- Military Psychology and Psychiatry Office - General Staff of the Army, Rome, Italy
- Flight Safety Inspectorate – Italian Air Force, Rome, Italy
- Italian Navy Health Inspectorate, Rome, Italy
- Department of Forensic Medicine of the Army, Cagliari, Italy
- Psychological Unit, 2nd Carabinieri Mobile Brigade, Livorno, Italy