

The impact of COVID-19 on the well-being and satisfaction of military students: The role of COVID-19 infection, prophylactic isolation and containment measures

Adelino António Gonçalves Pereira*  / Carlos Alberto Ventura Belindro* 

* Centro de Psicologia da Força Aérea, Lisboa, Portugal

Abstract: The COVID-19 pandemic has drastically altered daily life worldwide and its possible psychological consequences rapidly became a cause for concern. This study intends to analyze if COVID-19 related variables (i.e., infection, prophylactic isolation and satisfaction with the containment measures) have a significant effect on psychological well-being, life satisfaction, organizational commitment and satisfaction with military training of military students. A sample of 395 students was collected during May 2021. Participants answered four scales assessing psychological well-being, satisfaction with life, organizational commitment and satisfaction with military training. The results indicate that students who contracted COVID-19 revealed higher values of environmental mastery. Furthermore, students who agreed with the restrictions imposed by the military organization revealed higher satisfaction with life, environmental mastery, self-acceptance, affective and normative commitment, but also higher satisfaction with their military training. No significant effects were found in the scores of the other variables analyzed. These results show that the satisfaction with the virus containment measures had a significant effect on different psychological dimensions and also on the students' relationship with the military organization.

Keywords: Psychological well-being, Satisfaction with life, Organizational commitment, Military students, COVID-19.

Introduction

The COVID-19 pandemic was probably the most overwhelming event of the last decades. The unknown nature and rapid spread of the virus have forced governments all around the world to apply strict containment measures, such as general lockdowns, that changed everyone's lives abruptly and profoundly. The consequences of the virus and the containment measures rapidly raised concerns about mental health. At first, the main concerns were centered on health professionals, due to work overload and the perceived threat of being exposed to a new and unpredictable virus (Cao et al., 2020). Studies with this population highlighted high levels of anxiety, depression or sleep disorders (Bhattacharya & Prakash, 2021). However, it was quickly realized that the psychological impact of the pandemic would affect the whole society.

Several reports indicated that, during the pandemic, the risk of mental illness and psychological distress were increasing significantly among people with or without previous mental conditions (Mind, 2020, 2021; Wu et al., 2021). To better understand the interaction between COVID-19 and mental health/psychological factors, different variables related to the pandemic have to be

Correspondence concerning this article should be addressed to: Adelino Pereira, Centro de Psicologia da Força Aérea, Azinhaga dos Ulmeiros, 1649-020 Lisboa, Portugal. E-mail: aagpereira@emfa.pt

considered. Some studies focused on the effect of COVID-19 infection on mental health. Badinlou et al. (2022) found an association between the severity of COVID-19 infection during the acute phase of the disease and the levels of depression, anxiety and insomnia. Similarly, Xie et al. (2022) noted an increased risk of anxiety, depression, stress, sleep disorders and psychopharmac use in individuals infected with COVID-19. Also, Wilding et al. (2022) reported higher anxiety and depression and lower well-being in individuals due to COVID-19 infection. Other studies focused on the association between COVID-19 containment measures and mental health. Wissmath et al. (2021) tested the psychological impact of individual agreement with COVID-19 containment measures and found that individuals who do not agree with the containment measures, either because they are insufficient or excessive, revealed higher levels of stress. In a study focused on the impact of lockdowns in psychological distress and well-being, Fioravanti et al. (2022) found that psychopathological symptoms significantly increased and psychological well-being decreased during the lockdowns, in clear contradiction to what happened when the lockdowns ended.

A few studies have examined the interactions between COVID-19 and psychological factors in students, adolescents and young adults. For example, some studies suggest that psychological complications in young people doubled during the pandemic and they were persistent over time (Racine et al., 2021). Other studies reported that the negative psychological effects of the pandemic were significantly higher in adolescents and young adults, when compared to older individuals (Aknin et al., 2022). In a study with university students, Elmer et al. (2020) found that, together with psychological distress, social interaction was significantly and negatively affected by the pandemic, with students reporting increased social isolation and decreased emotional support. Other studies conducted in this population reported a significant decrease in school engagement and higher levels of burnout (Salmela-Aro et al., 2022). Fialho et al. (2021) also found that the levels of academic stress and academic satisfaction during the pandemic was negatively associated with the students' depressive symptoms.

On the other hand, several studies reported no significant effects of the pandemic on young people's mental health and some of them even reported an improvement in psychological disorders. For example, Janssens et al. (2021) found no significant changes in the levels of stress and Bouter et al. (2022) reported no significant effects in psychological symptoms of adolescents with pre-existing mental illness. Also, the study conducted by Hollenstein et al. (2021) revealed a significant decrease in the levels of anxiety and Bernasco et al. (2021) found a decrease in internalizing symptoms.

The concerns about mental health during the pandemic also emerged in the military, particularly due to the nature of their missions – despite being subjected to all the restrictions, military personnel still continued to perform their mission and played a crucial role in the fight against the virus – and training (European External Action Service, 2020; Guo et al., 2020; Wynn et al., 2020). In a study focused on resilience and mental health in military personnel during the pandemic, Cao et al. (2023) found that psychological symptoms can be reduced by improving resilience levels and effective coping strategies, supporting the need to build psychological immunity – a set of adaptive resources and personality characteristics that work as antibodies in stressful situations – to deal with crisis situations as the pandemic, as proposed by Gupta and Nebhinani (2020). The available literature with military populations is focused on the psychological effect of the pandemic in children and adolescents in military families (Lawson et al., 2022), veterans (Spiller et al., 2023) and working military personnel (Quartana et al., 2024). An exhaustive search in scientific databases on the effect of the pandemic on military students does not present any results specifically dedicated to this population. Even though military students are used to restrictive conditions, the pandemic brought a whole new circumstance and added new restrictions to those they usually experience. Initial military training usually takes months or years to complete and takes place on an internship basis, which significantly limits contacts with family and friends outside the military.

In addition to this stern environment, during the pandemic military students were subjected to even tighter restrictions that also severely limited interpersonal relationships, daily routines and the activities foreseen in the military training. All these factors make it imperative to assess military students' mental health in order to understand how their well-being is affected by exposure to the pandemic and the dramatic changes it has caused in their life, but also how their commitment to the military organization is affected. This study intends to compare different conditions related to the COVID-19 pandemic (infection and prophylactic isolation) and the satisfaction with the containment measures on the psychological well-being, life satisfaction, organizational commitment and satisfaction with military training of military students. For this purpose, this study establishes four specific objectives: (1) compare infected and non-infected military students in terms of psychological well-being and satisfaction with life; (2) evaluate students who were and those who were not submitted to prophylactic isolation in psychological well-being and satisfaction with life; (3) compare students with different levels of satisfaction with COVID-19 containment measures in psychological well-being and satisfaction with life; and (4) evaluate students with different levels of satisfaction with COVID-19 containment measures in satisfaction with military training and organizational commitment.

Method

Participants

A total of 395 military students participated in the present study, of which 323 (81.8%) were males and 58 (14.7%) were females (14 answers about sex were missing). The mean age was 21.7 ($SD=2.9$) years old. The participants were training to become an airmen ($n=203$), sergeants ($n=166$) and officers ($n=21$).

Instruments

Psychological Well-Being Scales (PWBS). The PWBS was first developed by Ryff (1989). The original scales comprised a total of 120 items, however later studies proposed shorter but equally valid and reliable forms of the instrument. The Portuguese version of the scales, developed by Fernandes et al. (2010), is composed of 30 items to which participants are asked to answer using a Likert scale ranging from 1 – *totally disagree* to 5 – *totally agree*. For scoring purposes, the authors used the total score as an indicator of psychological well-being (the human capacity for self-realization, development and flourishing), but also its 6 individual factors: autonomy (the feeling of self-determination and ability for self-control), environmental mastery (the person capacity to manage her own life and extrinsic demands), personal growth (the continuous development and openness to new experiences necessary to maximize the individual's potential), positive relations with others (the development of positive and altruistic relationships), purpose in life (the individual's definition of a meaningful life and assigning importance to existence and self-fulfillment) and self-acceptance (the individual's perception and acceptance of personal characteristics, good or bad, and a positive assessment of his past).

In the present study, the internal consistency of each individual factor and the total score (autonomy=.58; environmental mastery=.54; personal growth=.65; positive relations with others=.62; purpose in life=.73; self-acceptance=.77; Total score=.87) varies from marginally acceptable to appropriate and mimics the results of the Portuguese validation study, which suggests

that, despite its limitations, this instrument is useful for assessing psychological well-being in adolescents and young adults (Fernandes et al., 2010).

Satisfaction with Life Scale (SLS). The SLS was originally developed by Diener et al. (1985). This scale was adapted to the Portuguese language by Zanon et al. (2014) and recent studies also found that this instrument is a reliable indicator of life satisfaction in Portuguese students (Reppold et al., 2019). The scale is composed of five items to which the respondent is asked to answer using a five point Likert scale (from 1 – *I very much disagree* to 5 – *I very much agree*). The scale is based on the assumption that life satisfaction (the level of contentment that is perceived by the individual when he thinks about the various domains of his life or about his life in general) is a unidimensional construct and for that reason the authors used the total score to calculate life satisfaction. In this study, the scale revealed a Cronbach's Alpha of .80, suggesting appropriate levels of internal consistency.

Organizational Commitment Questionnaire (OCQ). This questionnaire was developed by Meyer and Allen (1997) and is composed of 19 items which evaluate the commitment based on affective/emotional attachment to the organization (Affective OC); the commitment based on transactions, that is, the individual is committed because he is expecting something in return from the organization (Calculative OC); and the commitment based on feelings of obligation and moral duty towards the organization (Normative OC). The instrument uses a seven point Likert scale ranging from 1 – *totally disagree* to 7 – *totally agree*. The Portuguese version of this scale was adapted by Nascimento et al. (2008) and revealed adequate psychometric properties. In the present study, each individual factor of the OCQ revealed appropriate levels of internal consistency. Specifically, the Cronbach's Alpha was .79 for Affective Commitment, .69 for Calculative Commitment and .80 for Normative Commitment.

Satisfaction with Military Training Questionnaire (SMTQ). This questionnaire was developed by the authors of the present study. In order to identify relevant aspects/areas of military training to include in the questionnaire, the authors conducted a series of interviews with military students during the year of 2020 (addressing their experience and opinion about military training). Theoretical saturation was reached after conducting 20 interviews and 14 different aspects of military training emerged after content analysis. Specifically, the authors identified: (1) military instruction and (2) instructors, (3) academic instruction and (4) instructors, (5) physical training, (6) comradeship, (7) leisure time, (8) study time, (9) class schedule, (10) food, (11) facilities, (12) rooms, (13) general rules and (14) COVID-19 containment rules. To elaborate the questionnaire, the authors used one item per aspect/area of military training (14 items in total) and the instructions asked the participants to rate their general satisfaction with each specific topic using a five point Likert scale (1 – *Very unsatisfied*, 2 – *Unsatisfied*, 3 – *Neutral*, 4 – *Satisfied* and 5 – *Very satisfied*).

An Exploratory Factor Analysis was conducted to evaluate construct validity. The KMO was .79 and the Bartlett's test was significant [$\chi^2(91)=1710.80, p<.001$]. The results suggest that using one factor is the best way to aggregate the items. However, the item related to comradeship revealed very low factor loading and communalities (below .3). For these reasons, a new analysis was performed excluding this item and forcing a one factor solution. The results revealed a KMO of .79 and a significant Bartlett's test [$\chi^2(78)=1686.01, p<.001$]. All items seem to perform adequately in this factor solution, with factor loadings higher than .3 (higher than .4 in 11 items), and the scale also revealed acceptable reliability estimates ($\alpha=.83$). For these reasons, the instrument was considered appropriate to assess the satisfaction with military training. For the purpose of the present study, the authors used the total score of the scale as an indicator of satisfaction with military training.

Procedure

The data were collected during the month of May 2021, just over a year after the first case of COVID-19 was reported in Portugal. Participants attended the same military training base and answered the data collection protocol in classrooms under conditions of anonymity, confidentiality, safety and protection, according to the principles of the Declaration of Helsinki and the APA Ethics Code. The researchers were always present to answer all questions and make sure that all COVID-19 containment measures established by the Portuguese authorities and the military institution were taken into account. The free will in participating was reinforced in two ways: an oral and a written statement regarding their rights, which included a topic specifically addressing the non-mandatory nature of their participation. The participants were also informed that they were allowed to withdraw from participating even after they started answering the data collection protocol. The authors also provided a personal contact in case any of the participants wanted to ask questions in private or seek psychological support.

Data analysis

To perform the comparative analyzes, the principles of normality in data distribution suggested by Field (2005) were considered. Parametric tests were used, namely the *T*-test and the ANOVA. For the *post hoc* analyses, the Hochberg GT2 test was performed, since this test is robust when there is homogeneity of variance, normality in data distribution but different group sizes (Field, 2005), which is the case in the present study. For hypothesis testing, the authors used the standard 0.05 significance level.

To perform the comparative analysis using satisfaction with COVID-19 containment measures as the independent variable, the authors recoded the response options for item 14 of the SMTQ into three categories: Unsatisfied (which combined the categories 1 – *very unsatisfied* and 2 – *unsatisfied*), Neutral (which remained unchanged from the original scale) and Satisfied (which combined the categories 4 – *Satisfied* and 5 – *Very satisfied*). Through this recoding it was possible to simplify the data analysis and interpretation by joining conceptually close categories. Data were analyzed using SPSS v.23.

Results

Comparative analysis between infected and non-infected in psychological well-being and satisfaction with life

As shown in Table 1, the results indicate that only one dimension of PWBS reveals a significant difference between infected and non-infected students, $t(385)=2.20, p=.029$). Specifically, those who were infected ($M=3.7, SD=0.4$) reveal higher levels of environmental mastery than those who were not infected ($M=3.6, SD=0.5$).

Comparative analysis between students who were and those who were not submitted to prophylactic isolation due to possible infection in psychological well-being or satisfaction with life

The results show that no significant differences exist between isolated and non-isolated military students in terms of psychological well-being and satisfaction with life (see Table 1).

Table 1

Comparative analysis between infected vs. non-infected and between submitted vs. non-submitted to prophylactic isolation in psychological well-being and satisfaction with life

Construct	Group	N	M	SD	t	p
COVID-19 infected?						
Psychological well-being	YES	93	4.0	0.3	1.46	.146
	NO	281	4.0	0.4		
Autonomy	YES	96	4.0	0.5	0.05	.958
	NO	292	4.0	0.5		
Environmental mastery	YES	96	3.7	0.4	2.20	.029*
	NO	291	3.6	0.5		
Personal growth	YES	97	4.4	0.4	1.30	.195
	NO	295	4.4	0.4		
Positive relations with others	YES	97	3.9	0.5	1.08	.279
	NO	293	3.9	0.5		
Purpose in life	YES	97	4.0	0.5	0.12	.901
	NO	293	4.0	0.6		
Self-acceptance	YES	97	4.0	0.4	0.88	.382
	NO	295	4.0	0.7		
Satisfaction with life	YES	98	3.7	0.6	-0.36	.716
	NO	294	3.7	0.8		
Submitted to prophylactic isolation?						
Psychological well-being	YES	201	4.0	0.4	0.94	.346
	NO	171	4.0	0.4		
Autonomy	YES	205	4.0	0.5	1.27	.205
	NO	181	4.0	0.5		
Environmental mastery	YES	205	3.6	0.5	-0.52	.604
	NO	180	3.6	0.5		
Personal growth	YES	206	4.4	0.4	0.20	.842
	NO	184	4.4	0.4		
Positive relations with others	YES	206	3.9	0.5	1.34	.181
	NO	182	3.8	0.6		
Purpose in life	YES	206	4.1	0.6	0.72	.470
	NO	182	4.0	0.6		
Self-acceptance	YES	205	4.0	0.6	0.42	.675
	NO	185	4.0	0.7		
Satisfaction with life	YES	206	3.7	0.7	0.21	.837
	NO	184	3.7	0.8		

Note. * $p < .05$.

Comparative analysis between students unsatisfied, neutral and satisfied with COVID-19 containment measures in psychological well-being or satisfaction with life

The present analysis (see Table 2) reveals that military students satisfied with the containment measures show higher levels of environmental mastery than those who are neutral or unsatisfied (Satisfied: $M=3.7$, $SD=0.4$; Neutral: $M=3.6$, $SD=0.4$; Unsatisfied: $M=3.5$, $SD=0.5$), $F(2,383)=6.01$, $p=.003$. Also, those who are satisfied revealed higher scores of self-acceptance (Satisfied: $M=4.0$, $SD=0.6$; Unsatisfied: $M=3.8$, $SD=0.7$), $F(2,386)=3.37$, $p=.035$, and satisfaction with life (Satisfied: $M=3.8$, $SD=0.7$; Unsatisfied: $M=3.4$, $SD=0.8$) than those who are unsatisfied with the containment measures, $F(2,388)=8.70$, $p<.001$.

Table 2

Comparative analysis between different groups of satisfaction with COVID-19 containment measures in psychological well-being and satisfaction with life

Construct	(Un)Satisfaction with COVID-19 containment measures?	N	M	SD	F	p
Psychological well-being	UNSAT	84	3.9	0.4	2.86	.058
	NEUTRAL	107	3.9	0.4		
	SAT	182	4.0	0.4		
Autonomy	UNSAT	86	4.1	0.5	1.59	.206
	NEUTRAL	110	4.0	0.5		
	SAT	191	4.0	0.5		
Environmental mastery	UNSAT	84	3.5	0.5	6.01	.003
	NEUTRAL	109	3.6	0.4		
	SAT *UNSAT,NEU	193	3.7	0.4		
Personal growth	UNSAT	87	4.4	0.4	1.33	.266
	NEUTRAL	110	4.3	0.5		
	SAT	194	4.4	0.4		
Positive relations with others	UNSAT	87	3.8	0.6	2.35	.097
	NEUTRAL	110	3.9	0.6		
	SAT	192	3.9	0.5		
Purpose in life	UNSAT	87	4.0	0.6	1.22	.296
	NEUTRAL	109	4.0	0.6		
	SAT	193	4.1	0.6		
Self-acceptance	UNSAT	87	3.8	0.7	3.37	.035
	NEUTRAL	111	4.0	0.6		
	SAT *UNSAT	193	4.0	0.6		
Satisfaction with life	UNSAT	86	3.4	0.8	8.70	.000
	NEUTRAL	111	3.7	0.7		
	SAT *UNSAT	194	3.8	0.7		

Note. UNSAT – Unsatisfied; NEUTRAL – Neutral; SAT – Satisfied. *UNSAT, NEU or SAT The mean value is significantly different from the mean value of the groups presented in superscript ($p < .05$).

Comparative analysis between students unsatisfied, neutral and satisfied with COVID-19 containment measures on satisfaction with military training or organizational commitment?

The results (see Table 3) show that military students who are satisfied with the containment measures reveal higher scores ($M=3.3$, $SD=0.5$) of satisfaction with military training than those who are neutral ($M=2.9$, $SD=0.6$) or those who are unsatisfied ($M=2.6$, $SD=0.5$), $F(2,390)=52.71$, $p < .001$. Furthermore, satisfied students ($M=5.2$, $SD=1.0$) also reveal higher scores of Affective OC than students who are neutral ($M=4.9$, $SD=1.1$) or unsatisfied ($M=4.6$, $SD=1.3$), $F(2,384)=10.56$, $p < .001$, and higher scores ($M=4.9$, $SD=1.1$) of Normative OC than those who are unsatisfied ($M=4.3$, $SD=1.2$), $F(2,377)=7.42$, $p = .001$.

Table 3

Comparative analysis between different groups of satisfaction with COVID-19 containment measures in satisfaction with military training and organizational commitment

Construct	(Un)Satisfaction with COVID-19 containment measures?	N	M	SD	F	p
Satisfaction with military training	UNSAT	87	2.6	0.5	52.71	.000
	NEUTRAL *UNSAT,SAT	111	2.9	0.6		
	SAT *UNSAT,NEU	195	3.3	0.5		
Affective organizational commitment	UNSAT	86	4.6	1.3	10.56	.000
	NEUTRAL	108	4.9	1.1		
	SAT *UNSAT,NEU	193	5.2	1.0		
Calculative organizational commitment	UNSAT	86	4.4	0.9	0.11	.896
	NEUTRAL	108	4.4	1.1		
	SAT	193	4.4	1.1		
Normative organizational commitment	UNSAT	86	4.3	1.2	7.42	.001
	NEUTRAL	106	4.6	1.1		
	SAT *UNSAT	188	4.9	1.1		

Note. UNSAT – Unsatisfied; NEUTRAL – Neutral; SAT – Satisfied. *UNSAT, NEU or SAT The mean value is significantly different from the mean value of the groups presented in superscript ($p < .05$).

Discussion

The present study intends to enlighten the impact of COVID-19 pandemic on the psychological condition of military students. Regarding the first two objectives of the present research, the results obtained suggest that the infection and the prophylactic isolation were not a cause for concern. Overall, no significant differences between infected and non-infected were found and the same happened between the students who were and those who were not submitted to prophylactic isolation. The only exception was that students who were infected revealed higher scores of environmental mastery. This may be due to the positive outcome of the disease and the perceived immunity, which may boost feelings of safety and confidence to deal with the environmental threats during the pandemic and reduce the anxiety of not knowing when or if they are going to be infected and how the infection will impact them. These results do not match some of the literature on this topic. For example, Wilding et al. (2022) found that individuals with COVID-19 infection revealed higher levels of depression and anxiety and lower levels of well-being than individuals without COVID-19 infection. Also, Badinlou et al. (2022) and Aknin et al. (2022) found higher levels of anxiety and depression associated with COVID-19, Elmer et al. (2020) reported a negative effect of COVID-19 on social relationships and Xie et al. (2022) showed an increased risk for mental disorders and substance use. However, other studies support the findings of the present research. For example, Wesemann et al. (2021) have found that the contact with the disease can lead to a more realistic assessment of the threat, along with a greater perception of control over the situation, and a gradual decrease in risk perception due to factors like the habituation effect (Wesemann et al., 2023). In younger populations, Hollenstein et al. (2021) reported improvements in mental health and Di Giunta et al. (2021) found that mental health issues decreased in a clinical sample. Other authors, such as Janssens et al. (2021) and Bouter et al. (2022), found no significant effects of the pandemic on adolescents' mental health. Furthermore, it is also important to notice that the participants in this study were submitted to an assessment of their psychological robustness to join the military a few months before their participation. For this reason, we would not expect results similar to those of the general population, as the number of people prone to psychological distress or mental illness in this sample is supposed to be smaller.

On the other hand, regarding the third objective of the present study, the satisfaction with COVID-19 containment measures seemed to have a significant effect in some students. Specifically, those who did not agree/unsatisfied with the containment measures imposed by the military institution (which included national containment measures imposed by the government and specific measures imposed by the military institution) revealed significantly lower levels of environmental mastery, self-acceptance, satisfaction with life and satisfaction with the military training. This results match the findings of Wissmath et al. (2021), according to which individuals who do not agree with the containment measures imposed during the pandemic revealed higher levels of stress and worries. The authors concluded that if the individual feels that the measures to contain the virus are excessive or insufficient, he will tend to suffer from greater stress and be more concerned with the impact of the pandemic on his daily life (Wissmath et al., 2021).

Finally, regarding the fourth objective of the present study, the results suggest that students who were unsatisfied with the containment measures were less satisfied with military training and also less affectively and normatively committed to the military institution than those who were satisfied with the containment measures. Other similar studies have found a decrease in school engagement and an increase in school burnout associated with the pandemic (Salmela-Aro et al., 2022), however, literature in this topic is scarce. In a different organizational context, Filimonau et al. (2020) stated that the organizational response to COVID-19 significantly affect employees'

organizational commitment, concluding that organizational resilience and corporate social responsibility are key factors to influence the individual's connection with the organization.

Overall, the results of the present study show that being infected or in prophylactic isolation didn't show any negative effects on military students psychological well-being or satisfaction with life. On the contrary, the level of satisfaction with COVID-19 containment measures seems to have a significant effect on different dimensions of psychological well-being and also over general satisfaction with life. This might happen because the containment measures affected profoundly the usual everyday life, habits and interactions for an undefined period of time, boosting feelings of frustration, turmoil and boredom difficult to tackle. Building psychological immunity may be a key element to address future crisis situations.

This results suggest that a positive/accepting attitude towards the containment measures may have a protective effect over some dimensions of the students' psychological well-being and satisfaction with life. According to Gupta and Nebhinani (2020), acceptance is one of the key elements of psychological immunity, as this characteristic helps to build discipline, problem solving skills and hope to deal with the challenges during a crisis situation. In the context of a pandemic, authorities have an important role in promoting acceptance of containment measures, as they must clearly communicate the purposes and expected impact/benefit of the containment measures. They should also facilitate and encourage community and peer support (Wissmath et al., 2021) and promote individual coping as it is a key factor to build resilience and mitigate the impact of the containment (Wong et al., 2021). These actions will help reduce stress, as well as improve acceptance and compliance with containment measures (Wissmath et al., 2021). Military organizations can also increase the organizational commitment of military personnel through this approach, as it contributes to psychological well-being and reinforces the perception that the organization cares about its soldiers and supports them during times of crisis. In this way, the military feel valued and respected, strengthening affective bonds and feelings of belonging.

Some limitations related to this research have to be mentioned. This study used a convenience sample and a cross-sectional design, which does not allow the identification of causal relationships. Furthermore, the study relied on self-report measures and did not take into account the number of times participants contracted the virus, how long ago they contracted it or how many times they had prophylactic isolation. Despite the fact that the infection provides immunity for several months and that the virus has been circulating in Portugal for about a year when the data were collected, these variables may have a relevant impact on the relationship between the pandemic and mental health. The inclusion of these variables in future studies, along with a longitudinal analysis, would be of great value for understanding this topic. Future studies should also explore the interaction between organizational commitment and individual drive to engage in strict or adverse rules of behavior during crisis situations in the military or other similar organizations.

Conclusions

The present study aimed to evaluate the impact of the COVID-19 pandemic and its containment measures on military students. For this purpose, a set of comparative analyzes were performed. The results highlight that contracting the virus increases students' perceived ability to manage their lives, however, those students who are unsatisfied with the containment measures seem to experience more negative effects of the pandemic. Having a positive/accepting attitude towards containment measures improved not only perceived environmental mastery, but also self-acceptance and life satisfaction. At the organizational level, we also found that acceptance of virus

containment measures is reflected in higher affective and normative commitment, but also in higher satisfaction with training.

The COVID-19 pandemic has confronted humanity with the greatest crisis in recent decades. The development of psychological immunity may represent a new perspective for theoretical and practical analysis of crisis and emergency situations, matching what happens in the medical sciences.

Declaration of conflicting of interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Authors contribution

Conceptualization: AAGP, CAVB; Data curation: AAGP, CAVB; Formal analysis: AAGP; Methodology: AAGP, CAVB; Visualization: AAGP, CAVB; Software: AAGP; Supervision: AAGP, CAVB; Project administration: AAGP, CAVB; Writing – Original draft: AAGP; Writing – Review and edit: AAGP, CAVB.

All the authors read and approved the final manuscript.

References

- Akin, L., De Neve, J.-E., Dunn, E., Fancourt, D., Goldberg, E., Helliwell, J., Jones, S., Karam, E., Layard, R., Lyubomirsky, S., Rzepa, A., Saxena, S., Thornton, E., VanderWeele, T., Whillans, A., Zaki, J., Karadag, O., & Ben Amor, Y. (2022). Mental health during the first year of the COVID-19 pandemic: A review and recommendations for moving forward. *Perspectives on Psychological Science, 17*(4), 915-936. <https://doi.org/10.1177/17456916211029964>
- Badinlou, F., Lundgren, T., & Jansson-Frojmark, M. (2022). Mental health outcomes following COVID-19 infection: Impacts of post-COVID impairments and fatigue on depression, anxiety, and insomnia – a web survey in Sweden. *BMC Psychiatry, 22*(1). <https://doi.org/10.1186/s12888-022-04405-0>
- Bernasco, E., Nelemans, S., van der Graaff, J., & Branje, S. (2021). Friend support and internalizing symptoms in early adolescence during COVID-19. *Journal of Research on Adolescence, 31*(3), 692-702. <https://doi.org/10.1111/jora.12662>
- Bhattacharya, P., & Prakash, J. (2021). Impact of COVID-19 on psychological and emotional well-being of healthcare workers. *Indian Journal of Critical Care Medicine, 25*(5), 479-481. <https://doi.org/10.5005/jp-journals-10071-23833>

- Bouter, D., Zarchev, M., de Neve-Enthoven, N., Ravensbergen, S., Kamperman, A., Hoogendijk, W., & Grootendorst-van Mil, N. (2022). A longitudinal study of mental health in at-risk adolescents before and during the COVID-19 pandemic. *European Child & Adolescent Psychiatry*, 32(6), 1109-1117. <https://doi.org/10.1007/s00787-021-01935-y>
- Cao, F., Li, J., Xin, W., Yang, Z., & Wu, D. (2023). The impact of resilience on the mental health of military personnel during the COVID-19 pandemic: Coping styles and regulatory focus. *Frontiers in Public Health*, 11, e1240047. <https://doi.org/10.3389/fpubh.2023.1240047>
- Cao, J., Wei, J., Zhu, H., Duan, Y., Geng, W., Hong, X., Jiang, J., Zhao, X., & Zhu, B. (2020). A study of basic needs and psychological wellbeing of medical workers in the fever clinic of a tertiary general hospital in Beijing during the CoVID-19 outbreak. *Psychotherapy Psychosomatic*, 89(4), 252-254. <https://doi.org/10.1159/000507453>
- Di Giunta, L., Lunetti, C., Fiasconaro, I., Gliozzo, G., Salvo, G., Ottaviani, C., Aringolo, K., Comitale, C., Riccioni, C., & D'Angeli, G. (2021). COVID-19 impact on parental emotion socialization and youth socioemotional adjustment in Italy. *Journal of Research on Adolescence*, 31(3), 657-677. <https://doi.org/10.1111/jora.12669>
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment*, 49(1), 71-75. https://doi.org/10.1207/s15327752jpa4901_13
- Elmer, T., Mepham, K., & Stadtfeld, C. (2020). Students under lockdown: Comparisons of students' social networks and mental health before and during the COVID-19 crisis in Switzerland. *PLOS ONE*, 15(7), e0236337. <https://doi.org/10.1371/journal.pone.0236337>
- European External Action Service. (2020, May). *Military assistance in the fight against COVID-19 in Europe – solidarity in action*. European Union. https://www.eeas.europa.eu/eeas/military-assistance-fight-against-covid-19-europe-%E2%80%93-solidarity-action_fr?s=317
- Fernandes, H., Vasconcelos-Raposo, J., & Teixeira, C. (2010). Preliminary analysis of the psychometric properties of Ryff's scales of psychological well-being in Portuguese adolescents. *The Spanish Journal of Psychology*, 13(2), 1032-1043. <https://doi.org/10.1017/s1138741600002675>
- Fialho, P., Spatafora, F., Kühne, L., Busse, H., Helmer, S., Zeeb, H., Stock, C., Wendt, C., & Pischke, C. (2021). Perceptions of study conditions and depressive symptoms during the COVID-19 pandemic among university students in Germany: Results of the International COVID-19 Student Well-Being Study. *Frontiers in Public Health*, 9, e674665. <https://doi.org/10.3389/fpubh.2021.674665>
- Field, A. (2005). *Discovering statistics using SPSS* (2nd ed.). SAGE Publications Ltd.
- Filimonau, V., Derqui, B., & Matute, J. (2020). The COVID-19 pandemic and organisational commitment of senior hotel managers. *International Journal of Hospitality Management*, 91. <https://doi.org/10.1016/j.ijhm.2020.102659>
- Fioravanti, G., Benucci, S., Probst, A., Banchi, V., & Casale, S. (2022). Effects of the COVID-19 pandemic on psychological health in a sample of Italian adults: A three-wave longitudinal study. *Psychiatry Research*, 315, 1-8. <https://doi.org/10.1016/j.psychres.2022.114705>
- Guo, X., Wu, L., Yu, X., Sun, Z., & Liu, W. (2020). Mental Health Care for Military Personnel in the COVID-19 Epidemic [Letter to editor]. *Military Medicine*, 185, 9-10. <https://doi.org/10.1093/milmed/usaa127>
- Gupta, T., & Nebhinani, N. (2020). Let's build the psychological immunity to fight against COVID-19 [Letter to editor]. *Indian Journal of Psychiatry*, 62, 601-603. https://doi.org/10.4103/psychiatry.IndianJPsychiatry_420_20
- Hollenstein, T., Colasante, T., & Loughheed, J. (2021). Adolescent and maternal anxiety symptoms decreased but depressive symptoms increased before to during COVID-19 lockdown. *Journal of Research on Adolescence*, 31(3), 517-530. <https://doi.org/10.1111/jora.12663>
- Janssens, J., Achterhof, R., Lafit, G., Bamps, E., Hagemann, N., Hiekkaranta, A., Hermans, K., Lecei, A., Myin-Germeys, I., & Kirtley, O. (2021). The impact of COVID-19 on adolescents' daily lives: The role of

- parent-child relationship quality. *Journal of Research on Adolescence*, 31(3), 623-644. <https://doi.org/10.1111/jora.12657>
- Lawson, M., Bowsher, B., & Hansen, S. (2022). The effect of COVID-19 on the mental health of military connected children and adolescents. *Pediatric Annals*, 51(4), e138-e143. <https://doi.org/10.3928/19382359-20220321-02>
- Meyer, J., & Allen, N. (1997). *Commitment in the workplace: Theory, research, and application*. Sage Publications, Inc.
- Mind. (2020, June). *The mental health emergency: How has the coronavirus pandemic impacted our mental health?*. https://www.mind.org.uk/media-a/5929/the-mental-health-emergency_a4_final.pdf
- Mind. (2021, July). *Coronavirus: The consequences for mental health*. <https://www.mind.org.uk/media/8962/the-consequences-of-coronavirus-for-mental-health-final-report.pdf>
- Nascimento, J., Lopes, A., & Salgueiro, M. (2008). Estudo sobre a validação do “Modelo de Comportamento Organizacional” de Meyer e Allen para o contexto português. *Comportamento Organizacional e Gestão*, 14(1), 115-133.
- Quartana, P., Beymer, M., Gomez, S., Adler, A., Santo, T., Thomas, J., & Bell, A. (2024). COVID-19 concerns, information needs, and adverse mental health outcomes among U.S. soldiers. *Military Medicine*, 189(3/4), e878-e887. <https://doi.org/10.1093/milmed/usad350>
- Racine, N., McArthur, B., Cooke, J., Eirich, R., Zhu, J., & Madigan, S. (2021). Global prevalence of depressive and anxiety symptoms in children and adolescents during COVID-19: A meta-analysis. *JAMA Pediatrics*, 175(11), 1142-1150. <https://doi.org/10.1001/jamapediatrics.2021.2482>
- Reppold, C., Kaiser, V., Zanon, C., Hutz, C., Casanova, J., & Almeida, L. (2019). Escala de Satisfação com a Vida: Evidências de validade e precisão junto de universitários portugueses. *Revista de Estudios e Investigación en Psicología y Educación*, 6(1), 15-23. <https://doi.org/10.17979/reipe.2019.6.1.4617>
- Ryff, C. D. (1989). Happiness is everything, or is it? Explorations on the meaning of psychological well-being. *Journal of Personality and Social Psychology*, 57(6), 1069-1081. <https://doi.org/10.1037/0022-3514.57.6.1069>
- Salmela-Aro, K., Upadyaya, K., Ronkainen, I., & Hietajärvi, L. (2022). Study burnout and engagement during COVID-19 among university students: The role of demands, resources, and psychological needs. *Journal of Happiness Studies*, 23(6), 2685-2702. <https://doi.org/10.1007/s10902-022-00518-1>
- Spiller, T., Na, P., Merians, A., Duek, O., Ben-Zion, Z., Tsai, J., Känel, R., Harpaz-Rotem, I., & Pietrzak, R. (2023). Changes in mental health among U.S. military veterans during the COVID-19 pandemic: A network analysis. *Journal of Psychiatric Research*, 165, 352-359. <https://doi.org/10.1016/j.jpsychires.2023.08.003>
- Wesemann, U., Sahebi, A., Vogel, J., Köhler, K., Kupusovic, J., Rassaf, T., & Siebermair, J. (2023). Post-traumatic stress disorder among COVID-19-affected high-risk cardiac patients. *International Health*. Advance online publication. <https://doi.org/10.1093/inthealth/ihad017>
- Wesemann, U., Vogel, J., Willmund, G., Kupusovic, J., Pesch, E., Hadjamu, N., Holzner, C., Wakili, R., Rassaf, T., & Siebermair, J. (2021). Proximity to COVID-19 on mental health symptoms among hospital medical staff. *Psychiatria Danubina*, 33(Suppl. 10), 132-136.
- Wilding, S., O'Connor, D., Ferguson, E., Cleare, S., Wetherall, K., O'Carroll, R., Robb, K., & O'Connor, R. (2022). Probable COVID-19 infection is associated with subsequent poorer mental health and greater loneliness in the UK COVID-19 Mental Health and Wellbeing study. *Scientific Reports*, 12(1), 20795. <https://doi.org/10.1038/s41598-022-24240-3>
- Wissmath, B., Mast, F., Kraus, F., & Weibel, D. (2021). Understanding the psychological impact of the COVID-19 pandemic and containment measures: An empirical model of stress. *PLoS ONE* 16(7), e0254883. <https://doi.org/10.1371/journal.pone.0254883>

- Wong, L., Alias, H., Danaee, M., Lee, H., Tan, K., Tok, P., Muslimin, M., AbuBakar, S., Lin, Y., & Hu, Z. (2021). Assessment of impact of containment during the COVID-19 epidemic and coping behaviours using newly developed assessment tools. *Frontiers in Public Health*, *9*, 787672. <https://doi.org/10.3389/fpubh.2021.787672>
- Wu, T., Jia, X., Shi, H., Niu, J., Yin, X., Xie, J., & Wang, X. (2021). Prevalence of mental health problems during the COVID-19 pandemic: A systematic review and meta-analysis. *Journal of Affective Disorders*, *281*, 91-98. <https://doi.org/10.1016/j.jad.2021.06.021>
- Wynn, G., Morganstein, J., Jetly, R., Ford, S., Vance, M., Meyer, E., West, J., Benedek, D., & Ursano, R. (2020). Military mental health and COVID-19. *Journal of Military, Veteran and Family Health*, *6*(Suppl. 2), 21-26. <https://doi.org/10.3138/jmvfh-2020-0048>
- Xie, Y., Xu, E., & Al-Aly, Z. (2022). Risks of mental health outcomes in people with covid-19: Cohort study. *BMJ*, *376*, e068993. <https://doi.org/10.1136/bmj-2021-068993>
- Zanon, C., Bardagi, M. P., Layous, K., & Hutz, C. S. (2014). Validation of the Satisfaction with Life Scale to Brazilians: Evidences of measurement noninvariance across Brazil and US. *Social Indicators Research*, *119*(1), 443-453. <https://doi.org/10.1007/s11205-013-0478-5>

O impacto do COVID-19 no bem-estar e satisfação de estudantes militares: O papel da infecção por COVID-19, do isolamento profilático e das medidas de contenção

Resumo: A pandemia de COVID-19 mudou drasticamente o dia-a-dia em todo o mundo e as suas possíveis consequências psicológicas rapidamente se tornaram um foco de preocupação. Este estudo pretende analisar se as variáveis associadas ao COVID-19 (i.e., infecção, isolamento profilático e satisfação com as medidas de contenção) têm um impacto significativo sobre o bem-estar psicológico, satisfação com a vida, comprometimento organizacional e satisfação com a formação militar de estudantes militares. Foi recolhida uma amostra de 395 estudantes durante o mês de maio de 2021. Os participantes responderam a quatro escalas que avaliam bem-estar psicológico, satisfação com a vida, comprometimento organizacional e satisfação com a formação militar. Os resultados indicam-nos que os alunos que contraíram COVID-19 revelaram valores mais elevados de domínio ambiental. Além disso, os alunos que concordaram com as restrições impostas pela organização militar revelaram maior satisfação com a vida, domínio ambiental, autoaceitação, compromisso afetivo e normativo, mas também maior satisfação com a formação militar. Não foram encontrados efeitos significativos nos valores das demais variáveis analisadas. Estes resultados mostram que a satisfação com as medidas de contenção do vírus teve um efeito significativo sobre várias dimensões psicológicas e também sobre a relação dos alunos com a organização militar.

Palavras-chave: Bem-estar psicológico, Satisfação com a vida, Comprometimento organizacional, Estudantes militares, COVID-19.

Submitted: 13/12/2023

Accepted: 04/06/2024