ISSN: 2230-9926

Available online at http://www.journalijdr.com

IJDR

International Journal of Development Research
Vol. 11, Issue, 09, pp. 50559-50562, September, 2021
https://doi.org/10.37118/ijdr.22901.09.2021

RESEARCH ARTICLE OPEN ACCESS

PREVALENCE OF COVID-19 INFECTION IN THE MILITARY FIREFIGHTER TRAINING COURSE

Mateus Campos Almeida Mendonça*[1], Nilviane Pires Silva Sousa[2], Naruna Aritana Costa Melo[3], Alan da Silva Lira[4], Ana Paula Muniz Serejo[5,8], Johny Adrian Rodrigues Nascimento Oliveira[5], Andressa Coelho Ferreira[6], Carlos Alberto Alves Dias Filho[7], Nivaldo de Jesus Silva Soares Junior[7], Carlos José Moraes Dias[7], Ana Catharinny da Silva de Oliveira[8] and Antonio Cardoso de Oliveira Neto[9]

[1]Instituto Florence de Ensino superior, Departamento de Farmácia, São Luís, 65020-490, MA, Brazil
[2]Universidade Federal do Maranhão, Doutora em Biotecnologia, São Luís,65080-805, MA, Brazil
[3]Faculdade Laboro, Especialista em Nutrição Clínica e Funcional,São Luís,65076-090, MA, Brazil
[4]Universidade Estadual do Maranhão, Mestrado em Ciência Animal, São Luís, 65.000-000, MA,Brazil
[5]Faculdade UNINASSAU, Departamento de Farmácia e Biomedicina, São Luís, 65040 -840, MA, Brasil
[6]Universidade Federal do Maranhão, Mestrado em Saúde do Adulto, São Luís,65080-805, MA, Brazil
[7]Universidade Federal do Maranhão, Mestrado em Saúde do Adulto e da Criança, São Luís,65080-805, MA, Brazil; [8]Universidade Federal do Maranhão, Mestrado em Saúde e Ambiente (PPGSA/UFMA), São Luis, 65080-805, MA, Brazil; [9]Universidade Federal do Maranhão, Departamento de Educação Física, São Luís,65080-805, MA, Brazil

ARTICLE INFO

Article History:
Received 20th August, 2021
Received in revised form
28th August, 2021
Accepted 14th September, 2021
Published online 30th September, 2021

Key Words:
Occupational exposure; Firefighters; Covid-19; Sars-Cov-2; Mental health; Post Covid.

***Corresponding author:**
Mateus Campos Almeida Mendonça

ABSTRACT

Professionals who work in the area of health and direct care to the community are at greater risk of infection due to occupational exposure to infected patients. Thus, the objective is to determine the prevalence of positive Covid-19 cases among the cadets of the military firefighters training course. This was a crosssectional study with 64 Age students from the Officer Training Course – Military Firefighter at the State University of Maranhão. Sociodemographic variables, prevalence of positive covid-19 cases and presence of post-infection clinical symptoms were measured. There was a high prevalence 68.8% (n=44) of positive cases of COVID-19 and the majority 82.8% (n=53) were male. Among the post-COVID-19 symptoms among the cadets who tested positive for the disease, most had neuropsychiatric symptoms such as anxiety 25% (n=11) and stress 9.1% (n=4) and headache 25% (n=11) between physical effects, among other symptoms associated with post infection by COVID-19. Thus, such data allows the development of prevention and control measures for this population, as well as others that present the same risk of exposure.

Citation: ***Mateus Campos Almeida Mendonça, Nilviane Pires Silva Sousa, Naruna Aritana Costa Melo, Alan da Silva Lira et al.*** "Prevalence of covid-19 infection in the military firefighter training course*", International Journal of Development Research*, 11, (09), 50559-50562.

INTRODUCTION

In 2020, the world suffered the most dramatic and catastrophic experience of the century due to the 2019 coronavirus disease pandemic (COVID-19) caused by SARS-CoV-2 and had unprecedented effects on health systems, economies and society.

In this context, first responders and public safety workers play a critical role in responding to the COVID-19 pandemic. (FERNÁNDEZ-DE-LAS-PEÑAS, 2021, NALLEBALLE *et al,* 2020, BAKER *et al*, 2020). The Officer Training Course/Military Firefighter (OTC/MF) course at the State University of Maranhão brings with it a peculiarity: academics already join the military hierarchy as Cadets.

Cadets are not only university students, but also assume the obligations of militarism and military fire service. In addition to academic activities, cadets are exposed to the risks of military training, duties and attributions and the discipline of professional activities (UEMA, 2021). According to decree 35.783, it required the services of military firefighters to organize the queues of caixaeconômicafederal bank branches in order to ensure safety and reduce large agglomerations in these places, due to the payment of emergency aid to low-income population by the federal government, (UEMA, 2021). In the scientific literature, however, there is still much to be explored about the impact of Covid 19 on work and workers and the implications for management. Assessing the burden of occupational exposure to infections and diseases, including how many workers were potentially exposed and what occupations they work in, allows for the implementation of prevention measures in the workplace that can support a workforce potentially exposed to SARSCoV2.(SEGAL *et al*, 2020, BAKER *et al*, 2020). Studies aimed at analyzing occupational issues serve as a reminder that the workplace is key to public health interventions that can protect workers and the communities they serve. Thus, the present study intends to assess the prevalence of positive cases of COVID-19 among students of the Officers Training Course - Military Firefighter. The population brings, in addition to the academic load, the experience of working in loco, being exposed to the risks inherent to the profession. Thus, such data allows the development of prevention and control measures for this population, as well as others that present the same risk of exposure.(BAKER *et al*, 2020)

MATERIAL AND METHODS

This is a cross-sectional study carried out from December/2020 to January/2021, with students from the Officer Training Course – Military Firefighter at the State University of Maranhão, located in the State of Maranhão, Northeastern Brazil. The OTC/MF course has 93 academics with active enrollment, all were invited to participate in the research voluntarily, but only 64 academics consented to participate. Therefore, a total of 64 participants were included in our analysis. The sample included: students with active enrollment of both genders, aged ≥ 18 years; and who were able to answer the questionnaire questions without the help of others. Participants who withdrew from participating in some stage of the study were excluded; the academics already diagnosed psychological and metabolic alterations. Participants who consented to participate in the study filled out an online questionnaire specially developed (APPENDIX A) for this research, where sociodemographic variables, prevalence of positive cases of covid-19, presence of post-infection clinical symptoms were evaluated.

The questions about COVID-19 contamination were:

- Have you been diagnosed with covid-19?
- Did you have any of these psychological effects after COVID - 19?
- Did you have any of these physical effects after COVID - 19?
- Did you have any of these neurocognitive effects after COVID - 19?
- Did you have any of these effects on the heart after COVID - 19?
- Did you have any of these respiratory effects after COVID - 19?
- Did you have any of these gastrointestinal effects after COVID - 19?

According to Ordinance n. 150/2020/DP-1 - Maranhão State Military Fire Brigade - MFBMA, which deals with the Protocol for rapid tests to detect the new Coronavirus-COVID-19, firefighters are submitted to the test within the ideal period of ten days after the onset of the first symptom,being removed from their activities immediately after symptoms. For the data file and statistical analysis, the SPSS software (Statistical Package for the Social Sciences, Inc., Chicago, IL, USA) version 19.0 was used.

Data treated through descriptive procedures: Prevalence (frequency). In the analysis of data related to post-covid symptoms, only positive cases for COVID-19 were considered. Participants included in this research after being informed in detail about the study, understanding its purpose and signing the Informed Consent Form. This study will be conducted in accordance with the resolution of the National Health Council – NHC nº. 466/2012, and was submitted to the ethics committee of the state university of Maranhão according to CAEE nº 42201620.1.0000.5554.

RESULTS AND DISCUSSION

A total of 64 cadets participated in the study and had a mean age of 25,4±5,4, among which 68.8% (n=44) had COVID-19. Of the total sample, 82.8% (n=53) are male, 32% (n=50) are brown. In line with the results presented, in the work by Segal *et al.* (2020) carried out with military personnel presented a mean age of young adults with 21,29 ± 4,06 years and most participants 81.34% were also male. These data corroborate the study by Lázaro-Perez *et al.*(2020) carried out with the same population, where the majority of the sample was also composed of men (87.5%), reflecting a masculine profile. Brazil, like other countries, uses the military in a series of tasks, ranging from border security, medical care, logistics, policing and crisis management.

In the COVID-19 pandemic, it was no different and the military had a crucial role in the fight against COVID-19, which may explain the high prevalence of infection by COVID-19 in the evaluated sample, since they are a group of workers who had to continue their work in loco in favor of social welfare (PASSOS, ACÁCIO,2021, GUO,2020). Discuss the prevalence of Covid-19 with other professional categories in academics from the OTC/MF of Maranhão. Table 2 shows the frequency of symptoms after COVID-19, among which we can highlight that anxiety was among the main psychological symptoms 25% (n=11), headache among the physical effects 25% (n=11), slower reasoning among neurocognitive 13.6% (n=6), chest pain or discomfort among heart effects 13.6% (n=6), tiredness or fatigue among respiratory 25% (n=11) and digestive problems among gastrointestinal effects 9.1% (n=4).

Although clinical attention and research focus have mostly been turned to the treatment of physiological changes caused by the new coronavirus. The psychological effects of the virus on infected patients must also be considered. As evidenced in previous SARS and MERS outbreaks, viral infections with subsequent isolation and quarantine can quickly culminate in sleep disturbances, anxiety, and depressive episodes (DENG*et al*, 2021). In this context, the evaluated sample showed a high prevalence of anxiety as post-COVID-19 effects. COVID-19 and its spread around the world is strongly impacting global and mental health among the population. Symptoms of insomnia, anxiety, symptoms of post-traumatic stress, among others, are being increasingly evaluated in several studies, reinforcing the importance of mental health, especially in a pandemic context.(TORALES *et al,* 2020, LIGUORI *et al,* 2020).

Emerging mental health problems related to this global event can evolve into long-term health problems, isolation and stigma. However, it is important to emphasize that the military is already at greater risk of developing mental problems during non-pandemic periods, and with the increase in workload and stress due to COVID-19, this risk of psychological distress may be increased (AL-JAHDHAMI *et al,* 2021, LIGUORI *et al,* 2020). Health services should invest in specialized multidisciplinary rehabilitation services in order to reverse these symptoms. This could prevent a future "tsunami" of chronic disease that will likely drain health resources and negatively affect our economies. (BAKER *et al*, 2020). Thus, understanding the burden of occupational exposure to infections and diseases, including the number of workers and which occupations they exercise, helps in planning prevention and control measures against COVID-19 and subsequent outbreaks of infectious diseases (BAKER *et al*, 2020).

CONCLUSION

There was a high prevalence of cases of COVID-19 in the evaluated students, the majority of military personnel had neuropsychiatric symptoms such as anxiety and stress and headache among the physical effects, among other symptoms associated with post infection by COVID-19. Thus, such data allows the development of prevention and control measures for this population, as well as others that present the same risk of exposure.

REFERENCES

Fernández-de-las-peñasC. *et al*. 2021. Definindo sintomas pós-COVID (COVID pós-agudo, COVID longo, Pós-COVID persistente): uma classificaçãointegrativa. *Jornal Internacionalde Pesquisa Ambientale Saúde Pública*. v. 18, n. 5, 2621.

Nalleballe, K *et al*. 2020. Spectrum of neuropsychiatric manifestations in COVID-19. *Brain, behavior, and immunity*, v.88, p. 71-74.

Baker, M. G., Peckham, T. K., Seixas, N. S. 2020. Estimando a carga de trabalhadores dos Estados Unidos expostos à infecção ou doença: Um fatorchavenacontençãodoriscodeinfecçãoporCOVID-19. *PlosONE*, v. 15, n. 4, e0232452.

Universidade Estadual Do Maranhão. 2021. *Projeto Pedagógico do Curso de Formação de Oficiais Bombeiro Militar*.São luís: UEMA.

Segal, D. *et al.* 2020. Measures to Limit COVID-19 Outbreak Effects Among Military Personnel: Preliminary Data. Military medicine, v. 185, n. 9-10, p. e1624-e1631.

Lázaro-Pérez, C.*et al* 2020. COVID-19 pandemic and death anxiety in security forces in Spain. International Journal of Environmental Research and Public Health, v. 17, n. 21, p. 7760,2020.

Passos, A. M., Acácio, I. 2021. The militarization of responses to COVID-19 in Democratic Latin America. *Revista de Administração Pública*, v. 55, n. 1, p. 261- 272.

Guo, X.*et al*(2020).Mental Health Care for Military Personnel in the COVID-19 Epidemic. *Military medicine*, v. 185, n. 9-10, p. e1401-e1405.

Deng, J. *et al*. 2021. The prevalence of depression, anxiety and sleepdisordersinpatientswithCOVID-19:ameta-analysis.*AnnNYAcadSci*.v. 1486, n. 1, p. 90–111.

Torales, J *et al.* 2020. The outbreak of COVID-19 coronavirus and its impact on global mental health. *Int J Soc Psychiatry*. v. 66, n. 4, p. 317-320.

Liguori, C. 2020. *et al:* Subjective neurological symptoms frequently occur in patients with SARS-CoV2 infection. *Brain, behavior, andimmunity,* v. 88, p. 11-16.

Al-Jahdhami, I; Al-Naamani, K; Al-Mawali, A. 2021. ThePost-acute COVID-19 Syndrome (Long COVID). *Oman Medical Journal,* v. 36, n. 1, p. e220, 2021.

Halpin, S. O'connor, R. Sivan, M. 2021. Long COVID andchronic COVID syndromes. *J Med Virol. v.* 93, n. 3, p. 1242-1243.

APPENDIX QUIZ

Participant:_____Age:_____

Gender:

Male
Female
Not informed

Race:

Brown

Black
White

Have you been diagnosed with covid-19?

Negative
Positive
Untested

Did you have any of these psychological effects after COVID - 19?

Anxiety
Stress
Memory loss
Did not feel

Did you have any of these physical effects after COVID - 19?

Headache
Hair loss
Ringing in the ear
Joint pain
Difficulty in breathing
Did not feel

Did you have any of these neurocognitive effects after COVID - 19?

I did not have Covid-19
Attention difficulty
Slow reasoning
Did not feel

Did you have any of these effects on the heart after COVID - 19?

Palpitation / Tachycardia
Chest pain or discomfort
Did not feel

Did you have any of these respiratory effects after COVID - 19?

Difficulty in breathing
Shortness of breath at rest/effort
Shortness of breath after physical activity
Tiredness/ Fatigue
Did not feel

Did you have any of these gastrointestinal effects after COVID - 19?

Nausea/ Vomit
other digestive problems
Weight loss
Did not feel

Table 1. Prevalence of sociodemographic factors and cases of covid-19 in students from the officer training course for firefighters in the state of Maranhão

Variables	Percentage (frequency) n=64
Gender	
Male	82,8 (53)
Female	15,6 (10)
Not informed	1,6 (1)
Race	
Brown	50 (32)
Black	25 (16)
White	25 (16)
Cases of COVID-19	
Negative	23,4 (15)
Positive	68,8 (44)
Untested	7,8(5)

Source: Prepared by the Authors

Table 2. Frequency of post-COVID-19 symptomatology among students from the officer training course for firefighters in the state of Maranhão

PSYCHOLOGICAL EFFECTS	
VARIABLE	% (n)
Anxiety	25% (11)
Stress	9,1% (4)
Memory loss	6,8% (3)
Did not feel	59,1% (26)
PHYSICAL EFFECTS	
VARIABLE	% (n)
Headache	25% (11)
Hair loss	4,5% (2)
Ringing in the ear	2,3% (1)
Joint pain	4,5% (2)
Difficulty in breathing	6,8% (3)
Did not feel	56,8% (25)
NEUROCOGNITIVE EFFECTS	
VARIABLE	% (n)
I did not have Covid-19	15,9% (7)
Attention difficulty	11,4% (5)
Slow reasoning	13,6% (6)
Did not feel	59,1% (26)
HEART EFFECTS	
VARIABLE	% (n)
Palpitation / Tachycardia	2,3% (1)
Chest pain or discomfort	13,6% (6)
Did not feel	84,1% (37)
RESPIRATORY EFFECTS	
VARIABLE	% (n)
Difficulty in breathing	4,5% (2)
Shortness of breath at rest/effort	6,8% (3)
Shortness of breath after physical activity	6,8% (3)
Tiredness/ Fatigue	25% (11)
Did not feel	56,8% (25)
EFEITOS GASTROINTESTINAIS	
VARIABLE	% (n)
Nausea/ Vomit	2,3% (1)
other digestive problems	9,1% (4)
Weight loss	4,5% (2)
Did not feel	84,1% (37)

Source: Prepared by the Authors.

****