

# Effect of a pandemic on the resilience of Brazilian frontline doctors

*Efeito de uma pandemia sobre a capacidade de resiliência de médicos brasileiros trabalhadores da linha de frente*

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## ABSTRACT

**Objective:** To analyze the resilience capacity of Brazilian doctors and, consequently, their impacts due to the Covid-19 pandemic. **Methods:** Prospective cohort study, analyzed at the time of the highest number of cases in the general population and the greatest demand for health services due to respiratory complaints (July to October 2021) and compared to a period of falling cases and greater control of the pandemic (September to October 2022). Data collection was carried out using a virtual questionnaire, and the data were computed using the Bioestat software version 5.0. The parameters used were mean difference and standard deviation of burnout syndrome levels. **Results:** Participants were, on average, 38 and a half years old, 62% were women and, among them, 55% were married. Most consumed alcohol regularly during the week and had an average career length of 12.4 years. A third were associated with a type of psychiatric illness (such as depression and anxiety), and 30% had lost a family member to Covid-19. Thus, according to the changes seen in relation to resilience from one year to the next, a loss of resilience capacity was demonstrated in the post-pandemic period. **Conclusion:** The resilience of Brazilian doctors is similar to that of colleagues from other parts of the world. However, the pandemic was an independent factor in worsening capacity.

**Keywords:** Pandemics; Covid-19; Resilience, psychological

## RESUMO

**Objetivo:** Analisar a capacidade de resiliência dos médicos brasileiros e, consequentemente, seus impactos pela pandemia da Covid-19. **Métodos:** Estudo de coorte prospectiva, analisado no momento de maior número de casos da população geral e de maior procura por serviços de saúde por queixas respiratórias (julho a outubro de 2021) e comparado a um período de queda de casos e maior controle da pandemia (setembro a outubro de 2022). A coleta de dados foi realizada por meio de um questionário virtual, e os dados foram computados pelo software Bioestat versão 5.0. Os parâmetros utilizados foram diferença média e desvio-padrão dos níveis de síndrome de burnout. **Resultados:** Os participantes possuíam, em média, 38 anos e meio, 62% eram mulheres e, dentre elas, 55% eram casadas. Grande parte consumia álcool regularmente durante a semana e possuía tempo médio de carreira de 12,4 anos. Um terço estava associado a um tipo de doença psiquiátrica (como depressão e ansiedade), e 30% tinham perdido algum familiar por Covid-19. Assim, de acordo com as alterações vistas em relação à resiliência de um ano para o outro, foi demonstrada perda da capacidade de resiliência no pós-pandemia. **Conclusão:** A resiliência do médico brasileiro é semelhante a de colegas de outras partes do mundo. No entanto, a pandemia foi um fator independente na piora da capacidade.

**Descritores:** Pandemias, Covid-19, Resiliência psicológica

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## INTRODUCTION

On March 23, 2021, Brazil had more than 12 million confirmed cases of coronavirus disease 2019 (Covid-19), more than 10 million recovered cases and more than 300,000 deaths as a result.<sup>1</sup>

A pandemic not only puts people's lives and property safety at risk, but it also has a negative impact on mental health. Diseases such as anxiety and depression have an increased incidence in the entire population.<sup>2</sup> In this situation of unavailability of treatments and vaccinations at an early stage, social and behavioral changes are highly recommended to control physical and mental health.<sup>3</sup>

An Italian study involving a sample of 6,314 people from the general population showed that around a third of participants reported moderate to extreme depression, anxiety and/or stress.<sup>4</sup> Another study found that more than half of the Italian population suffered insomnia during restrictive measures following Covid-19.<sup>5</sup> However, not all individuals exposed to crisis situations develop such symptoms, with resilience being a protective factor against mental illnesses.<sup>6</sup>

One specific population at greatest risk for drastic psychological consequences was frontline workers. Understanding your ability to go through this stressful moment is important to take care of those who care for the health of others.

Resilience is an individual's ability to cope with adversity and has been shown to reduce the impact of traumatic events. It can be understood as a process of positive adaptation to a stressful situation, in the face of an established interpersonal interaction. Resilience varies from person to person and depends on several factors. The strategies for dealing with the current pandemic that have been identified are optimism, social support and staying effective, avoiding information overload and maintaining online communication.<sup>6</sup>

The 14-item Resilience Scale (RS-14) used in this study is a 14-item resilience assessment derived from Wagnild and Young's 1993 original resilience scale.<sup>7</sup> This questionnaire is widely used in the literature.

This study aimed to analyze the resilience capacity of Brazilian doctors and, consequently, their impacts due to the Covid-19 pandemic.

## METHODS

Prospective cohort study carried out with a virtual questionnaire. The study population was made up of emergency doctors working during the pandemic. The period analyzed comprised a time of high cases in the general population and high demand for health services due to respiratory complaints (July to October 2021) and was compared to a period of reduction in cases and greater control of the pandemic, with a return to conventional pre-pandemic work routine (September to October 2022).

The instruments, to be answered via the Google Forms Application, were composed of three parts: Free and Informed Consent Form (TCLE), clinical questionnaire and RS-14.

The link generated by the application was sent by e-mail to emergency doctors registered in the database of the *Associação Brasileira de Medicina de Emergência* (Abramede), forwarded via WhatsApp to groups made up of emergency doctors from across the country and coordinators of medical residencies. emergencies and personally encouraged by the researcher in face-to-face events attended by emergency doctors.

The adapted clinical questionnaire was composed of age, sex, marital status, presence of children, who they lived with, history of smoking or alcohol consumption, work experience, medical specialty, history of psychiatric illness, medical comorbidities and family history of infection by Covid-19.<sup>8</sup>

The instrument adopted in this study to measure resilience capacity was the RS-14, which is a 14-item resilience assessment derived from the original resilience scale by Wagnild and Young, 1993. This questionnaire is widely used in the literature. Compreende quanto maior o seu número de resposta, maior a capacidade de se adaptar as mudanças drásticas e desagradáveis do ambiente social.

RS-14 respondents were asked to state the degree to which they agreed or disagreed with each item on a one- to seven-point Likert-type scale, where one is strongly disagree and seven is strongly agree. In this research, we adopted the Italian version<sup>9</sup> of this questionnaire.

The calculation of the minimum sample size was performed using the Bioestat software version 5.0. The parameters used were mean difference and standard deviation of burnout syndrome levels ( $10.00 \pm 5.00$ ). Baseline values were in accordance with literature from other parts of the world. The expected values were obtained based on the researcher's hypothesis in accordance with researched references.<sup>10-13</sup>

Significance levels  $\alpha$  of 0.001 and  $\beta$  of 0.10 (power of 90%) were used, which resulted in a minimum initial sample of 17 individuals. Then, a sample load was carried out, estimating a sample loss of 20% of the sample participants at the end of the follow-up, which totaled the need for a minimum sample of 22 individuals.

## RESULTS

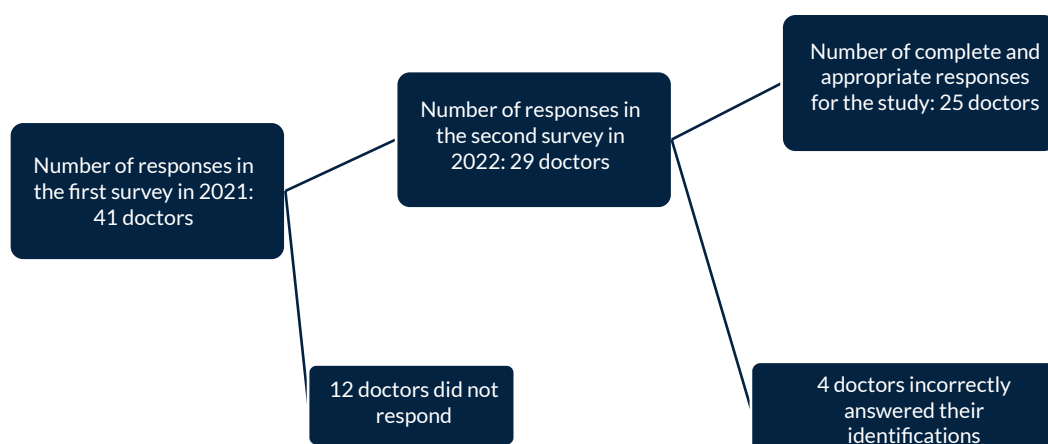
After sending the questionnaires, during the months of July to September 2021, 41 emergency doctors returned their answers, who again received the same form to be answered in the period from August to September 2022; 29 doctors answered the questionnaire for the second time, and four of them did not correctly indicate their identification and could not be included in the study (**Figure 1**).

**Table 1** demonstrates the main characteristics attributable to the interviewees. They had an average age of 38 and a half years, with a standard deviation of 7.83. Regarding sex, 62% were women. The majority (55%) were married. A large proportion consumed alcohol regularly during the week. The professionals had an average career length of 12.4 years, with a standard deviation of 6.9 years. A third of those interviewed already had some type of psychiatric illness (mostly depression and anxiety). Furthermore, 30% lost a family member to Covid-19.

**Table 1** . Characterization of the sample with all 29 responders

Feature	n=29	Standard deviation
Middle ages	38.52	7.83
Women	18 (62)	
Marital status		
Single	10 (34)	
Married	16 (55)	
Divorced	3 (10)	
Have children	16 (55)	
Smoking	0	
Alcohol consumption > 2 times a week	8 (27.5)	
Training time (years)	12.4	6.9
Psychiatric illness		
No	19 (65)	
Depression	5 (17)	
Anxiety disorder	5 (17)	
Lost a family member to Covid-19	10 (30)	

Results expressed as mean or n (%).



**Figure 1** . Flowchart of data collection and its follow-up.

**Table 2** demonstrates the changes seen in relation to resilience from one year to the next. In 2021 we had an average of 75.16 pontos with a standard deviation of 10.64 and, in 2022, an average of 72.48 pontos, with a standard deviation of 9.86, demonstrating a loss of resilience capacity in the post-pandemic period.

**Table 2.** Questionnaire applied to frontline doctors during the peak moment of the pandemic, in 2021, compared to the same professionals a year later outside the critical period, according to the 14-item Resilience Scale

	Mean $\pm$ SD, Median (AIQ), n = 25		Value - p*
	2021	2022	
RS-14	75.16 $\pm$ 10.64	72.48 $\pm$ 9.86	0.061
n (%), n = 25			

\*Values obtained after the Wilcoxon T test.

SD: standard deviation; AIQ: interquartile range; RS-14: 14-item Resilience Scale.

## DISCUSSION

It is understandable that these professionals, within the scope of their work activities, suffer more emotional impact than workers in other areas who were not dealing directly with patients suffering from a new disease, with very high virulence and little information, until that moment. Initial studies showed that these professionals were already demonstrating changes in sleep and mood over time during the pandemic. Understanding their real psychological state and the impact that a sudden change in routine brings to doctors working on the front line is necessary to maintain and expand the quality of service provided to the population.<sup>4</sup>

The interviewees apparently lost their resilience after the event. Resilience is described as the ability to “bounce off” negative emotional experiences and adopt solutions to the demands of stressful experiences, something that seems extremely necessary when working on the frontline in healthcare during a period of pandemic. Another analysis carried out through RS-14 in Italy indicated that the resilience capacity of 102 health workers in the pandemic and their numbers were similar to that

found in the current study. Italians had an average resilience capacity of 75.85 (standard deviation of 12.27) while Brazilians had 75.9 (standard deviation of 10.2).<sup>13</sup> After going through a long period of aggression towards mental health, it is possible that frontline medical workers have lost their capacity for psychological resilience and new values have emerged.

## CONCLUSION

The Brazilian doctor’s resilience is similar to that of colleagues from other parts of the world, however the pandemic was an independent factor associated with worsening capacity. More studies and a greater number of interviewees are needed to better understand the individual characteristics attributable to this loss.

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