

## THE USE OF MASKS AMONG BRAZILIAN NURSING WORKERS DURING THE COVID-19 PANDEMIC

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### ABSTRACT

**Objective:** to assess the use of masks among Brazilian nursing workers during the COVID-19 pandemic.

**Method:** cross-sectional study addressing nursing workers between March and May 2020. Data were collected online using a form addressing demographic variables and the Brazilian Portuguese version of the Face Mask Use Scale (FMUS-PB). Data were analyzed using descriptive and inferential statistics, central tendency and dispersion measures, Student's t-test, and analysis of variance.

**Results:** a total of 3,294 workers participated; most were nurses (85.9%), women (90.2%), lived in the southeast (36.9%), and had had contact with the COVID-19 (77.8%). The participants reported using masks in public places and at work (63.1% and 78.8%, respectively). However, only 25.8% wore masks at home. Individuals aged between 35 and 45 ( $p=0.002$ ) living in the south ( $p<0.001$ ) reported more frequent use of masks. Nursing technicians ( $p<0.001$ ), aged  $\geq 45$  ( $p<0.001$ ), living in the south ( $p<0.001$ ), scored higher in the use of masks for self-protection and to protect others ( $p=0.002$ ). Prior contact with COVID-19 resulted in the more frequent use of masks for self-protection and to protect others ( $p<0.001$ ).

**Conclusion:** the use of masks by nursing workers in public places and health settings was more frequent than at home. Additionally, masks were more frequently use for self-protection than to protect others. These results show a need to promote cultural changes toward masks for personal protection and within the family and social contexts.

**DESCRIPTORS:** Masks. Infection control. Nursing team. Coronavirus. Pandemics.

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# PRÁTICA DO USO DE MÁSCARAS ENTRE PROFISSIONAIS DE ENFERMAGEM NO BRASIL NA PANDEMIA DA COVID-19

## RESUMO

**Objetivo:** avaliar o uso de máscaras por profissionais de enfermagem no Brasil na pandemia da COVID-19. **Método:** estudo transversal, com profissionais de enfermagem, realizado entre março e maio de 2020. A coleta de dados *online* foi realizada por meio de um formulário com variáveis demográficas e a versão para o Português do Brasil da *Face Mask Use Scale* (FMUS-PB). Os dados foram analisados por meio de estatística descritiva e inferencial, com medidas de tendência central e de dispersão, teste *t* e análise de variância.

**Resultados:** participaram 3.294 profissionais, a maioria na categoria enfermeiro (85,9%), sexo feminino (90,2%), da região sudeste (36,9%) e que tiveram contato com a COVID-19 (77,8%). Os profissionais afirmaram usar a máscara em locais públicos e no trabalho (63,1% e 78,8% respectivamente). Por outro lado, obteve-se 25,8% para uso de máscaras no domicílio. Aqueles com idade entre 35 e 45 anos ( $p=0,002$ ), da região Sul ( $p<0,001$ ) usavam mais as máscaras. Técnicos de enfermagem ( $p<0,001$ ), indivíduos  $\geq 45$  anos ( $p<0,001$ ) e da região Sul ( $p<0,001$ ) apresentavam maior autoproteção e proteção do outro ( $p=0,002$ ). Ter contato com a COVID-19 repercutiu em maior proteção, autoproteção e proteção do outro ( $p<0,001$ ).

**Conclusão:** a adoção do uso de máscaras por profissionais de enfermagem em ambientes públicos e de saúde foi maior do que no domicílio e, a finalidade do uso para a autoproteção obteve maior adesão do que para a proteção do outro. Isso expressa a necessidade de mudanças culturais quanto ao uso de máscaras para proteção pessoal, familiar e social.

**DESCRITORES:** Máscaras. Controle de infecções. Equipe de enfermagem. Coronavírus. Pandemias.

# PRÁCTICA DEL USO DE MÁSCARAS ENTRE PROFESIONALES DE ENFERMERÍA EN BRASIL EN LA PANDEMIA DEL COVID-19

## RESUMEN

**Objetivo:** evaluar el uso de máscaras por profesionales de enfermería, en Brasil, en la pandemia del COVID-19.

**Método:** estudio transversal, con profesionales de enfermería, realizado entre marzo y mayo de 2020. La recogida de datos online fue realizada por medio de un formulario con variables demográficas y con la versión para portugués de Brasil de la *Face Mask Use Scale* (FMUS-PB). Los datos fueron analizados por medio de la estadística descriptiva e inferencial, con medidas de tendencia central y de dispersión, test *t* y análisis de variancia.

**Resultados:** participaron 3.294 profesionales, la mayoría en la categoría enfermero (85,9%), sexo femenino (90,2%), de la región sureste (36,9%) y que tuvieron contacto con el COVID-19 (77,8%). Los profesionales afirmaron usar la máscara en locales públicos y en el trabajo (63,1% y 78,8% respectivamente). Por otro lado, se obtuvo 25,8% para uso de máscaras en el domicilio. Aquellos con edad entre 35 y 45 años ( $p=0,002$ ), de la región sur ( $p<0,001$ ), usaban más las máscaras. Los técnicos de enfermería ( $p<0,001$ ), individuos  $\geq 45$  años ( $p<0,001$ ) y de la región sur ( $p<0,001$ ), presentaban mayor autoprotección y protección al otro ( $p=0,002$ ). El tener contacto con el COVID-19 repercutió en una mayor protección, autoprotección y protección al otro ( $p<0,001$ ).

**Conclusión:** la adopción del uso de máscaras por profesionales de enfermería en ambientes públicos y de salud fue mayor que en el domicilio y, la finalidad del uso para la autoprotección obtuvo mayor adhesión que la protección al otro. Esto expresa la necesidad de introducir cambios culturales, en lo que se refiere al uso de máscaras para protección personal, familiar y social.

**DESCRITORES:** Máscaras. Control de infecciones. Grupo de enfermería. Coronavirus. Pandemias.

## INTRODUCTION

The emergence of the novel human coronavirus, SARS-CoV-2, became a global problem, leading to respiratory tract infections with symptoms ranging from mild to severe and millions of deaths worldwide, especially among health workers.<sup>1-2</sup>

This situation shows a need to invest in preventive measures to minimize the spread of the virus, which can be transmitted in many different ways, including direct or indirect contact, droplets, fecal-oral route, blood, vertical transmission, and from animals to humans.<sup>3</sup>

Considering the virus rapid and high transmissibility, the World Health Organization (WHO) declared that the COVID-19 outbreak is a public health emergency of international concern.<sup>4-6</sup> Since there are no specific therapies to treat SARS-CoV-2, social distancing, hand hygiene, cough etiquette, and facial masks became essential to protect and prevent COVID-19.<sup>2</sup>

In this context, health workers are on the pandemic frontline as they provide direct care to patients with a confirmed or suspected diagnosis<sup>7</sup> and are supposed to adopt Standard Precautions (SP). SP are essential recommendations to protect health workers and should be implemented toward any patient, regardless of whether an infectious agent has been confirmed.<sup>8</sup>

Facemasks were adopted as an individual protective measure since the 2000s, after the outbreak of severe acute respiratory syndrome (SARS), especially in collective spaces. Currently, due to the high transmissibility of the SARS-CoV-2, wearing a mask became a priority.<sup>9-10</sup>

Therefore, educational actions recommending masks by both health workers and the population are implemented continuously by national<sup>11</sup> and international<sup>2</sup> agencies. Each nation established rules to contain the virus spread, including the use of facemasks in places with people's circulation.<sup>12</sup> The universal use of masks in the community has been considered an important measure to control the COVID-19.<sup>13</sup>

As a result, the demand for surgical masks increased worldwide, creating difficulties for large-scale production in a short time, so that the use of this type of mask was restricted to health workers.<sup>12</sup>

Unlike Western and Asian countries, where the use of masks is a common practice to protect oneself and others, up to the emergence of the COVID-19, only potentially infected individuals or those requiring protection wore masks in Brazil. For this reason, the use of masks as a national intervention measure breaks paradigms in the country.<sup>14</sup>

Even though masks are widespread, the correct use of masks demands attention from health workers, both at the workplace and in public places.<sup>15</sup> Thus, educational interventions recommending the correct use of masks and other specific measures are essential for the safety of those assisting and providing care to patients in all health care settings,<sup>2,8</sup> such as nursing workers.

Considering the nursing workers' vulnerability to the COVID-19 and the profound changes caused by the pandemic concerning the use of masks, both within healthcare settings and at home, including the population in general, this study's objective was to assess the use of masks by Brazilian health workers.

## METHOD

This cross-sectional study applied an online form to survey nursing workers in all Brazilian regions. It is part of a larger project titled “*Multinational study on the face mask use practice among the general public during the COVID-19 pandemic*”.

A convenience sample was calculated considering a finite population of 1,885,697 Brazilian nursing workers,<sup>16</sup> with a 5% margin of error and 95% confidence interval. A total of 770 participants were estimated. Inclusion criteria were: being a nursing worker and completing all the instrument's items.

Data were collected by one collaborating researcher in each Brazilian region. These researchers disseminated the invitation to the professionals in each region's states and cities, asking their professional contacts to publicize the study widely. Due to rapid and easy online access, the study was conducted between April and May 2020. The necessary number of participants was obtained in all the regions, exceeding the minimum sample required. Multiple communication strategies, such as message applications and social media (WhatsApp™, Facebook, Instagram/ Facebook Inc.; Twitter Inc. and LinkedIn Inc.) in addition to e-mails, were used to invite the participants and also to collect data.

An online form was used (Google Docs/G-Suite/ Google LLC). It contained two instruments: a general information form and the Brazilian Portuguese version of the Face Mask Use Scale (FMUS-PB), presented on different pages. The first part contained the form addressing general information to characterize the sample, such as demographic variables (e.g., sex, age, marital status, city, number of people living in the same household) and professional COVID-19-related variables. The FMUS-PB was developed in China<sup>17</sup> and later translated and validated to Portuguese (Brazil) in 2020, including apparent and content validation performed by experts in the subject.

The scale addresses masks in general, that is, any type of mask protecting mouth and nose, worn in public places, health services, or at home to protect oneself from flu-like diseases during the COVID-19 pandemic. It collects information regarding two domains: 1. Cautious practices (items 2,4, and 5), and 2. Negligent practices (items 1,3, and 6). The FMUS-PB items also address perceptions of the use of masks for self-protection (items 1,2, and 6) and for the protection of others (items 3,4, and 5).<sup>17</sup>

The scale presents high validity and reliability, with an ICC equal to 0.84 (95%CI= 0.78~0.89,  $p<0.001$ ), indicating satisfactory retest stability. The FMUS is a six-item instrument rated on a five-item Likert scale (i.e., never, rarely, sometimes, frequently, always). Thus, scores ranged from six to 30 points. The items are positively rated; hence, “always” answers are expected in all the items.<sup>17</sup>

The overall score obtained in the FMU and the scores obtained in each of its domains were analyzed in relation to demographic and professional variables. Data analysis was performed using IBM®SPSS, version 22, and descriptive statistics and central tendency and dispersion measures were used along with normality tests. The Student's t-test and analysis of variance were used to compare the scores regarding the use of masks depending on demographic and professional variables. The significance level was established at  $p<0.05$ . The Institutional Review Board approved this study (Opinion report 3.971.512). A free and informed consent form was available on the initial page, and after the participants checked “Agree,” they were granted access to the survey.

## RESULTS

A total of 3,294 nursing workers participated; most were women (90.2%), nurses (85.9%), aged 20.6 on average (SD=6.8), married or in a stable union (51.3%), and lived in the southeast (36.9%) (Table 1); 880 (27.1%) reported prior contact with the COVID-19.

**Table 1** – Characterization of Brazilian nursing workers. Brazil, 2020. (n=3,294)

Variables	n	%
Profession		
Nurse	2792	85.9
Nursing technician	457	14.1
Sex		
Female	2930	90.2
Male	319	9.8
Marital status		
Single	1318	40.6
Married/Stable Union	1668	51.3
Divorced	233	7.2
Widowed	30	0.9
Age range (years)		
18 – 25	448	13.7
25 – 35	1121	34.5
35 – 45	929	28.5
>45	728	22.4
Region		
North	224	6.9
Northeast	1151	35.4
Midwest	365	11.2
Southeast	1199	36.9
South	310	9.5
Total	3294	100

Most workers (78.8%) checked the answer “I always wear a face mask in a doctor’s clinic to protect myself against influenza-like illness,” though 47.0% did not wear masks at home when in the presence of flu-like symptoms.

When asked about the use of masks in different places, regardless of the type used, 52.4% ensured they always wore masks in public places and health settings (70.2%) whenever in the presence of flu-like symptoms. However, 49.8% did not wear masks at home when a family member presented flu-like symptoms (Table 2).

The overall score was 20.6 (SD=6.8), ranging from 6 to 30, with a percentage of 68.6%. The score obtained in the cautious practices domain was 11.9 (SD=3.7), while the score obtained in the negligent practices domain was 8.7 (SD=3.8), ranging from 3 to 15. A score equal to 10.6 (DP=3.2) was obtained for self-protection, and equal to 9.9 (DP=4.1) was obtained for the protection of others, a minimum of 3 and a maximum of 15.

**Table 2 – Nursing workers' responses to the Brazilian version of the Face Mask Use Scale (FMUS) during the COVID-19 pandemic, Brazil, 2020. (n=3,294)**

Items*	Never n (%)	Rarely n (%)	Sometimes n (%)	Often n (%)	Always n (%)
1. I wear a face mask in public venues to protect myself against influenza-like-illness. (n= 3,292).	400(12.3)	219 (6.7)	575 (17.7)	02 (0.6)	2051 (63.1)
2. I wear a face mask in a doctor's clinic to protect myself against influenza-like-illness (n=3,279).	220(6.8)	116 (3.6)	338 (10.4)	01 (0.3)	2559 (78.8)
3. I wear a face mask at home when I have symptoms of influenza-like-illness (n=3,283).	1526 (47.0)	405 (12.5)	469 (14.4)	01 (0.3)	837 (25.8)
4. I wear a face mask in public venues when I have symptoms of influenza-like-illness (n=3,173).	892 (27.5)	228 (8.9)	350 (10.8)	02 (0.6)	1701 (52.4)
5. I wear a face mask in a doctor's clinic when I have symptoms of influenza-like-illness (n=3,278).	411 (12.7)	200 (6.2)	333 (10.2)	01 (0.3)	2281 (70.2)
6. I wear a face mask at home when family members have influenza-like-illness (n=3,271).	1617 (49.8)	468 (14.4)	444 (13.7)	01 (0.3)	700 (21.7)

Legend:\*All the items presented missing data.

Table 3 presents the scores of the two domains and perception of protection according to demographic, professional, and COVID-19 related variables.

Nursing workers aged between 35 and 45 ( $p=0.002$ ) living in the south ( $p<0.001$ ) scored higher than their counterparts regarding the use of masks. Note that nursing technicians ( $p<0.001$ ), aged  $\geq 45$  ( $p<0.001$ ), living in the south ( $p<0.001$ ) were more considerate of themselves (self-protection) and others ( $p<0.001$ ), while older nursing workers scored higher ( $p<0.001$ ) in self-protection (Table 3).

Regarding the two domains, workers aged between 35 and 45 ( $p=0.008$ ) living in the south ( $p<0.001$ ) scored higher in the cautious practices domain. Male and single nursing workers, aged between 18 and 25, living in the southeast, without prior contact with COVID-19 presented the lowest scores. Additionally, this group less frequently wore masks in public places or at home ( $p<0.05$ ). On the other hand, workers with prior contact with COVID-19 more frequently reported cautious practices in general, along with self-protection and consideration of others ( $p<0.001$ ).

**Table 3 – Mean scores according to demographic and professional variables, Brazil, 2020. (n=3.294)**

Variable	Overall use of masks (n=3,207)		Cautious practices (n=3,216)		Negligent practices (n=3,226)		Self-protection (n=3,220)		Others protection (n=3,218)	
	Mean (SD)	p	Mean (SD)	p	Mean (SD)	p	Mean (SD)	p	Mean (SD)	p
Marital Status										
Single	20.2(6.8)	0.045†	11.8(3.7)	0.488†	8.4(3.8)	0.008†	10.5(3.3)	0.069†	9.7(4.1)	0.130†
Married	20.8(6.8)		12.0(3.7)		8.8(3.8)		10.8(3.2)		10.1(4.1)	
Divorced	20.7(6.8)		11.9(3.8)		8.7(3.8)		10.7(3.3)		10.0(4.1)	
Widowed	22.6(7.4)		12.3(4.0)		10.1(4.2)		11.4(3.8)		10.9(4.7)	
Sex										
Female	20.6(6.8)	0.050*	12.0(4.0)	0.081*	8.7(4)	0.065*	10.7(3.3)	0.129*	10.0(4.1)	0.043*
Male	19.8(7.1)		11.6(4.0)		8.3(4)		10.4(3.4)		9.5(4.2)	
Profession										
Nurse	20.4(6.9)	0.026*	11.9(3.8)	0.043*	8.6(3.8)	0.025*	10.6(3.3)	0.002*	9.9(4.1)	0.183*
Nursing technician	21.3(6.5)		12.2(3.4)		9.0(3.7)		11.1(3.1)		10.1(3.9)	
Age range										
18   25	19.6(7.0)	0.002†	11.4(3.8)	0.008†	8.1(3.8)	0.000†	10.1(3.0)	0.001†	9.4(4.0)	0.002†
25   35	20.4(6.7)		11.9(3.6)		8.5(3.8)		10.6(3.0)		9.8(4.0)	
35   45	21.0(6.7)		12.1(3.6)		8.8(3.8)		10.7(3.0)		10.3(4.0)	
>45	20.8(6.7)		11.7(3.8)		9.0(3.7)		10.8(3.0)		9.9(4.1)	
Region										
North	20.8(6.3)	0.000†	11.9(3.5)	0.000†	8.8(3.5)	0.000†	10.8(3.0)	0.000†	10.0(3.8)	0.000†
Northeast	20.9(6.7)		12.1(3.5)		8.8(3.8)		10.8(3.0)		10.1(3.9)	
Midwest	20.7(6.6)		12.0(3.6)		8.7(3.7)		10.6(3.0)		10.0(4.0)	
Southeast	19.6(7.0)		11.4(3.9)		8.2(3.7)		10.1(3.0)		9.5(4.0)	
South	22.4(6.6)		12.7(3.5)		9.7(3.8)		11.6(3.0)		10.8(4.0)	
COVID-19 contact										
No	20.1(7.0)	0.000*	11.6(3.9)	0.000*	8.5(3.8)	0.000*	10.5(3.4)	0.000*	9.6(4.1)	0.000*
Yes	21.9(6.2)		12.7(3.1)		9.1(3.7)		11.2(2.9)		10.7(3.8)	

\*=Test ; †=Anova

## DISCUSSION

This study assessed the use of masks among Brazilian nursing workers during the COVID-19 pandemic and their perception of self-protection and others' protection in public places, health settings, and home. The number of nurses in the study was more expressive than that of nursing technicians, and most reported a bachelor's degree in nursing.

Note that not all nursing workers reported using masks in public places, health settings, or at home to protect themselves and others.

The participants' responses show that nursing workers more frequently wore masks in public places and health settings to protect themselves from flu-like symptoms. The use of masks is highly recommended to prevent the spreading of viruses, such as influenza and COVID-19 because masks restrict the spread of droplets.<sup>18</sup> The use of masks on the part of nursing workers in public places also helps decrease the stigma of this equipment among the population in general,<sup>19</sup> especially in countries where masks are not the cultural norm, like Brazil.

Another piece of information that stands out is that masks were seldom worn at home, even in the presence of flu-like symptoms, neither for self-protection nor to protect others. This finding shows that, despite the amount of information disseminated since the virus was discovered, actions are needed to educate these professionals.

Masks are laden with symbolic implications that differ among people from different cultures, and therefore, different perceptions and interpretations permeate masks, resulting in unequal health behavior among communities.<sup>20</sup> The nursing technicians addressed in this study scored higher than nurses regarding the use of masks to protect themselves and others. This result may be explained by the fact that technicians spend more extended periods providing direct care, and the use of masks is more common in their routine practice than among nurses. However, comparisons are not possible because no studies were found addressing respiratory masks in the COVID-19 pandemic.

The participants' responses show that individuals aged between 35 and 45 living in the south scored higher in the cautious practices domain. This domain comprises items that concern the use of this personal protective equipment (PPE) in public places and health settings to prevent being infected or infecting other people, which can minimize the spread of SARS-CoV-2 in these places.

On the other hand, the negligent practices domain shows that single male workers aged between 18 and 25, nurses, and those living in the southeast, without prior contact with COVID-19 presented the lowest scores. The items concerning this domain are mostly related to the use of masks at home, and when this practice is neglected, those living in the same residence may be at risk.

Regarding self-protection and others' protection, the results show that nursing workers valued the use of masks. It is essential to control generalized infection, both in public places, such as health services, and at home, due to the high rate of asymptomatic individuals, the fact that droplets are spread when we talk and sneeze, and that the virus can survive for prolonged periods in the environment.<sup>21-22</sup>

Positive answers to the items concerning the use of masks for self-protection were more frequent than otherwise. In this aspect, a study conducted in Jordanian reports that self-protective measures, such as the use of masks among health workers, obtained better results among those working in the frontline.<sup>23</sup> A perception of threat can be determinant for adherence to preventive practices.<sup>24</sup> Individuals more likely to wear masks are precisely those who perceive themselves at the risk of being infected by a life-threatening disease.<sup>25</sup>

One study states that an individual's susceptibility to a severe life-threatening disease predicts the use of masks, which are appointed as a measure of protection.<sup>20</sup> However, this study's results show that health workers less frequently wore masks at home, even in the face of flu-like symptoms. Therefore, self-protection and the protection of others were minimized, increasing the risk of transmission.

This study does not provide information regarding mask shortages, which would impede the participants from protecting themselves. However, considering the economic disparities of a continent-spanning country like Brazil, PPE shortage is a possibility that can contribute to the spread of SARS-CoV-2 to health workers and their families and even lead to mental health problems.<sup>26-27</sup>

The participants with prior contact with COVID-19 more frequently wore masks than those without prior contact with the virus. These results may be explained by proximity with the disease, the severity of patients to whom one provides care, and mainly a greater understanding of the virus high transmissibility, which in practice, reflect into workers being more considerate with their health and that of others.<sup>19</sup>

The duration of the COVID-19 pandemic in Brazil is uncertain. For this reason, the health staff deserves care and humanizing actions, besides to be sensitized, not only regarding the use of masks to prevent COVID-19 but also regarding occupational risks faced in their daily professional practice. A change in cultural norms concerning self-protection and the protection of others leads to a relevant reflection regarding habits, routines, protocols, and operational procedures, in addition to a need for workers to be listened to regarding their needs, fear, and anxieties.

A study addressing the knowledge, practice, and behavior of health workers found similar results regarding the adoption of masks to prevent COVID-19, reporting inadequate or lack of knowledge regarding the use of masks.<sup>28</sup> Therefore, educational actions such as interventions directed to nursing workers may influence and change behavior. Additionally, actions focused on nursing students can also be beneficial considering the new context in which human resources are being trained, focusing on the fight against the pandemic.<sup>29</sup>

Two of this study's authors performed the cultural adaptation and validated its psychometric properties. However, the methodological study's results had not been published by the time this study was concluded, configuring a limitation.

## CONCLUSION

This study's results show that, during the COVID-19 pandemic, nursing professionals wore masks in public places and health settings more frequently than at home. Additionally, adherence to masks for self-protection was more expressive than to protect others.

Nursing technicians aged between 35 and 45 and living in the south reported the highest mask use rate, while older workers and nursing technicians living in the south were the most considerate of their protection and that of others.

The results show that the workers less frequently wore masks at home, even in the face of flu-like symptoms. This result brings a critical alert that failure to wear masks at home makes other people susceptible to the infection by SARS-CoV-2.

These results also reveal that the use of masks varies among Brazilian regions, showing a need to strengthen protective measures among nursing workers, considering socioeconomic and cultural differences. However, these differences do not impede the use of masks according to guidelines recommending protective measures within the professional and family spheres.

These findings have relevant implications for nurse workers' care practice and self-care, with an emphasis on the need to provide guidelines concerning the responsible use of masks, also addressing the rights and duties regarding the occupational protection of these workers, supporting the development of culturally appropriate policies to prevent respiratory infections, and protect Brazilian health workers.

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## NOTES

### ORIGIN OF THE ARTICLE

Extracted from the study – Multinational study on the face mask use practice among the general public during the COVID-19 pandemic, *Universidade Federal Fluminense*, in 2020.

### CONTRIBUTION OF AUTHORITY

Study design: Pereira-Ávila FMV, Galvão MTG, Toffano SEM, Lam SC.

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### APPROVAL OF ETHICS COMMITTEE IN RESEARCH

Approved by the Ethics Committee in Research with Human Beings of the *Universidade Federal Fluminense*, National Ethics Committee, Opinion report No. 3.971.512, CAAE 30572120.0.0000.0008.

### CONFLICT OF INTEREST

There is no conflict of interests.

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