



Adherence to standard precautions by nursing professionals in Brazil during the COVID-19 pandemic: a cross-sectional study

Adesão às precauções padrão por profissionais de enfermagem no Brasil durante a pandemia de COVID-19: um estudo transversal

Adhesión a las precauciones estándar por profesionales de enfermería en Brasil durante la pandemia de COVID-19: un estudio transversal

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ABSTRACT

Introduction: COVID-19 is an infectious disease caused by the SARS-CoV-2, which has a very high degree of contamination and confers patients and health professionals at risk. Thus, one wonders about the rate of adherence to standard precautions by nursing professionals from different contexts in the country. **Aim:** To identify adherence to standard precautions (SP) by nursing professionals who provided care during the COVID-19 pandemic and to verify the association between adherence to SP and sociodemographic and work characteristics. **Outlining:** Cross-sectional observational study, carried out with 493 nursing professionals working in nursing care in the five regions of Brazil. Data collection was carried out through Google Forms®, using social networks. The recruitment of participants took place between November 2020 and December 2021. Descriptive analysis was performed and the results presented by absolute and relative frequency. Pearson's chi-square test (X^2) was used to verify the association between adherence to SP (≥ 75 points) and sociodemographic and work variables. **Results:** In the total sample, 353 (71.6%) professionals adhered and 140 (28.3%) did not. There was an association between age group (40 to 49 years) with adherence to SP in the total sample. **Implications:** Nursing professionals showed a deficit in adherence to SP, with younger people less likely to adhere, bringing great impacts to the health of professionals.

DESCRIPTORS

Infection Control; Nursing team; Coronavirus infections; Occupational Hazards; Worker's health.

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INTRODUCTION

Health professionals are constantly exposed to the risks present in the hospital environment, which can directly interfere with their health conditions. Among these workers, the front line nursing team has a high degree of occupational risk, especially exposure to biological materials. This happens due to the direct and indirect assistance they provide to patients and the types of procedures they perform, which directly expose them to microorganisms present in the patients' blood and body fluids.¹

The Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2), which causes the Novel Coronavirus (COVID-19) pandemic, is potentially fatal and represents an important public health crisis that threatens humanity. With the advent of the COVID-19 pandemic, installed in March 2020, there was a great overload of health work and the adoption of specific protection measures for health professionals became a major challenge. In addition to the high rates of infection, infected professionals can also become a vehicle for transmitting the virus to patients and other people with whom they have contact, if they do not adopt adequate protective measures.²

In this context, standard precautions (SP), basically consisting of hand hygiene, use of Personal Protective Equipment (PPE) if necessary, correct handling and disposal of sharps and waste, are measures to prevent the transmission of infections in healthcare settings and should be applied to all patients, regardless of whether infection is suspected or confirmed. These measures, beyond to protecting the professional against occupational risks of exposure to biological material and patients against possible infectious agents carried by the hands of professionals or equipment used during health care. They include hand hygiene (HH); correct use of PPE, safe injection practices, infection control measures, and coughing etiquette.³⁻⁶ The vast majority of infections can be prevented by adopting simple measures, such as the use of PPE, in compliance with

asepsis measures and proper processing of articles and surfaces, which characterizes the system of specific precautions.⁷

Among the risk prevention and control measures to combat the pandemic, the precautions characterized by hand hygiene, use of procedure gloves, protective aprons, surgical masks or masks with a minimum filtration efficiency of 95% and protective glasses stand out or face shield whenever there is a risk of contact with body fluids. Additionally, special care has been adopted in cleaning and disinfecting surfaces, in handling sharps and their safe disposal. This set of conducts also considers hygiene etiquettes when coughing, sneezing, touching the eyes, nose, as well as social coexistence behavior to the worker, health institutions must have trained professionals to guarantee the technical and scientific principles concerning the control of nosocomial infections, especially nursing professionals.⁸ It is emphasized that the work environment in the health area offers different risks to professionals, with the members of the nursing team being the most exposed,⁹ due to the responsibility of providing direct and uninterrupted 24-hour care.

Thus, adherence to SP should complement the arsenal of conducts for direct or indirect care for any patient, regardless of their clinical or serological diagnosis of infection.³ Undoubtedly, adherence to the principles of asepsis and pre-exposure measures can prevent and/ or minimize the risk of direct contact with biological material transmitted by the airways, blood or other potentially infectious body fluids. However, even in the pandemic period, scientific evidence has shown that health professionals' adherence to the basic principles of hand hygiene and gowning is still a challenge and remains considerably below ideal, especially for nursing professionals.¹⁰⁻¹³

In this sense, considering the high risk of transmission, the expansion of the disease in the national territory, and the differences in the distribution of cases of the disease in the regions of

Brazil, including the number of severe cases that culminated in deaths, it is questionable about the rate of adherence to standard precautions by nursing professionals from different contexts in the country who work in care during the COVID-19 pandemic. Thus, the objective of the study is to identify adherence to SP by nursing professionals from the five regions of Brazil, who work in care during the COVID-19 pandemic, and to verify the association between adherence to SP and sociodemographic and labor characteristics.

METHOD

This is a cross-sectional observational study.¹⁴ The study followed the Reporting of Observational Studies in Epidemiology (STROBE) and Checklist for Reporting Results of Internet E-Surveys (CHERRIES) checklist for its presentation. This research was approved by the Ethics and Research Committee of the University of São Paulo at Ribeirão Preto School of Nursing (CEP-EERP/USP), in accordance with CAAE n° 38623520.6.0000.5393, and followed the guidelines that regulate research involving Human Beings, in accordance with Resolution CNS 466/12 of the National Health Council. Participants were informed of all the purposes and methods used in the study, emphasizing their right to withdraw from the research at any time.

The sample consisted of nursing professionals (assistants, nursing technicians and nurses) working in nursing care in five different regions of Brazil (South, Southeast, Midwest, North and Northeast). Recruitment of participants took place between November 2020 and December 2021 and was carried out voluntarily online using the social networks Facebook®, Instagram®, LinkedIn® and WhatsApp®. At the beginning, the researcher presented details of the research, giving a brief account of the objectives, risks and contributions to the performance of nursing practice. The invitation was posted weekly and had access to the five regions of Brazil. The sample size was defined by convenience, being the maximum

number of participants who agreed to participate in the research within the 13 months of recruitment. The inclusion criteria for participation in this research were: Nursing professionals aged ≥ 18 years, who worked in care during the COVID-19 pandemic at the time of data collection, confirmation that these professionals followed these criteria according to information from the participants. The free Google forms® tool was used, where a planned form was created so that all questions were answered. To answer the questionnaires, the participants had to accept the Informed Consent Form that was at the beginning of the form and inform the e-mail, avoiding duplication of answers. The instrument used for data collection was the “Questionário de Adesão às Precauções Padrão” (QAPP), self-administered, with an average of five minutes to complete, adapted and validated for Brazil,¹⁵ whose authorization was given by the responsible researcher for use in this present study. It should be noted that the aforementioned instrument is a Likert-type ordinal scale, from 0 to 4 points and has 20 questions. Each answer obtained as “always” is added 4 points; “often” is added to 3; “sometimes” is added 2; “rarely” should add 1 and “never” add 0 points, ranging from 0 to 80 points. The higher the score, the more the individual adheres to the SP.

The results were verified using the item responses on the Google Forms®, analyzed using descriptive statistics and presented in absolute and relative frequency, arbitrarily adopting a score of ≥ 75 points as the cutoff point for adherence. Regarding the adherence of nursing professionals, a graph with the maximum, minimum, average or median scores was presented. Pearson's chi-square test (X^2) was used to verify the association between professionals who adhered to the recommendations for adherence to SP and sex (male and female), age group (18 to 24; 25 to 29; 30 to 39; 40 to 49; 50 to 59), level of education (High School or Secondary Education; Higher Education, Bachelor's or Degree; Graduate, Master's or Doctorate), occupation (Nurse;

Nursing technician; Nursing assistant), in how many workplaces you work in nursing, type of institution (General; University; District; Emergency Room; Long Stay Institution; Basic Health Unit; Home care; Obstetrics; Pediatrics; Surgical Clinic; Ambulatory), nature of the institution (public, private, public and private), and time working in nursing services (years). The entire analysis was performed using SPSS (Statistical Package for the Social Sciences) version 23, with a significance level set at $\alpha = 5\%$.

RESULTS

The total sample consisted of 493 nursing professionals, 374 (75.8%) were female, 157 (31.8%) were between 30 and 39 years old, 249 (50.4%) had a postgraduate degree (master's and/or doctorate), 358 (72.5%) were nurses, 219 (44.3%) worked in general hospitals, 245 (49.6%) in private hospitals and 118 (23.9%) worked for less than a year in nursing. In relation to the five regions of the country, there was a greater number of participants in the Southeast region and a smaller number in the South region, but the demographic results of all regions followed the pattern of higher frequency. The sociodemographic and occupational results are described in table 1.

Table 1 - Distribution of research participants (total and by region) according to sociodemographic and occupational variables. Brazil, 2022.

Variables	Total (493) n (%)	South (25) n (%)	Southeast (398) n (%)	Midwest (28) n (%)	North (41) n (%)	North East (37) n (%)
Sex						
Female	374 (75.8)	20 (80)	297 (74.6)	22 (78.6)	39 (60)	32 (86.5)
Male	119 (24.2)	5 (20)	101 (25.4)	6 (21.4)	2 (40)	5 (13.5)
Age						
18 to 24	105 (21.3)	7 (28)	89 (22.4)	3 (10.7)	1 (20)	5 (13.5)
25 to 29	109 (22.2)	5 (20)	82 (20.6)	10 (35.7)	0	12 (32.4)
30 to 39	157 (31.8)	7 (28)	127 (31.9)	11 (39.3)	1 (20)	11 (29.7)
40 to 49	100 (20.2)	5 (20)	85 (21.4)	3 (10.7)	2 (40)	5 (13.5)
50 to 59	22 (4.5)	1 (4)	15 (3.8)	1 (3.6)	1 (20)	4 (10.8)
Education level						
Elementary School, 3 rd Cycle of Basic Education (9 th year)	2 (0.4)	0	2 (0.5)	0	0	0
High School or Secondary School	94 (19)	12 (48)	71 (17.8)	3 (10.7)	2 (40)	6 (1.2)
Higher Education, Bachelor's	148 (30)	3 (12)	128 (32.2)	7 (25)	1 (20)	9 (24.3)
Postgraduate, Master's or Doctorate Degree	249 (50.4)	10 (40)	197 (49.5)	18 (64.3)	2 (40)	22 (59.5)
Occupation						
Nurse	358 (72.5)	10 (40)	291 (73.1)	24 (85.7)	2 (40)	31 (83.8)
Nursing technician	110 (22.3)	15 (60)	82 (20.6)	4 (14.3)	3 (60)	6 (16.2)
Nursing assistant	25 (5.4)	0	25 (6.3)	0	0	0
In how many nursing workplaces.						
1	392 (79.4)	20 (80)	318 (79.9)	22 (78.6)	5 (100)	27 (73)
2	81 (16.4)	4 (16)	66 (16.6)	5 (17.9)	0	6 (16.2)
3	20 (4)	1 (4)	14 (3.5)	1 (3.6)	0	4 (10.8)
Institution						
General	219 (44.3)	7 (28)	180 (45.2)	10 (35.7)	3 (60)	19 (51.4)
University	44 (8.9)	2 (8)	38 (9.5)	0	0	4 (10.8)
District	3 (0.6)	0	2 (0.5)	1 (3.6)	0	0
Emergency Room	45 (9.1)	1 (4)	40 (10.1)	2 (7.1)	0	2 (5.4)
Long Stay Institution	24 (4.9)	2 (8)	18 (4.5)	2 (7.1)	0	2 (5.4)
Basic health Unit	29 (5.9)	4 (16)	16 (4)	2 (7.1)	1 (20)	6 (16.2)
Home care	47 (9.5)	49 (16)	34 (8.5)	6 (21.4)	1 (20)	2 (5.4)
Obstetrics	11 (2.2)	3	6 (1.5)	1 (3.6)	0	1 (2.7)
Pediatrics	14 (2.8)	2	9 (2.3)	2 (7.1)	0	1 (2.7)
Surgical Clinic	25 (5.1)	0	24 (6)	1 (3.6)	0	0
Outpatient	32 (6.5)	0	31 (7.8)	1 (3.6)	0	0
Nature of the institution						
Public	195 (39.5)	9 (36)	156 (39.2)	8 (28.6)	3 (60)	19 (51.4)
Private	245 (49.6)	9 (36)	204 (51.3)	17 (60.7)	2 (40)	13 (35.1)
Public, private	53 (10.7)	7 (28)	38 (9.5)	3 (10.7)	0	5 (13.5)
How long have you been performing nursing services?						
Less than 1 year	118 (23.9)	1 (4)	95 (23.9)	9 (32.1)	1 (20)	12 (32.4)
Between 1 to 2 years	75 (15.2)	4 (16)	61 (15.3)	4 (14.3)	0	6 (16.2)
Between 3 to 4 years	60 (12.1)	6 (24)	44 (11.1)	7 (25)	0	3 (8.1)
Between 5 to 6 years	34 (6.9)	2 (8)	29 (7.3)	0	0	3 (8.1)
Between 7 to 8 years	34 (6.9)	2 (8)	27 (6.8)	3 (10.7)	0	2 (5.4)
Between 9 to 10 years	43 (8.7)	1 (4)	38 (9.5)	2 (7.1)	0	1 (2.7)
Between 11 to 15 years	45 (9.1)	5 (20)	35 (8.8)	1 (3.6)	1 (20)	3 (8.1)

Between 16 to 20 years	42 (8.5)	3 (12)	36 (9)	0	2 (40)	1 (2.7)
Between 21 to 30 years old	40 (8.1)	1 (4)	31 (7.8)	2 (7.1)	0	6 (16.2)
Over 31 years	2 (0.4)	0	2 (0.4)	0	0	0

Legend: n = participants; %= percent.

Source: Direct search.

In Table 2, note that there is still a deficit in the adoption of SP during the practice of health care, with greater emphasis on the use of PPE, hand hygiene, handling of sharps and the notification of occupational accidents, with greater evidence in the

Northeast region. Additionally, information on the frequency of responses to the Questionnaire on adherence to standard precautions by nursing professionals in the five regions of the country is presented in table 2.

Table 2 - Frequency of responses to the Questionnaire on adherence to standard precautions by nursing professionals in the five regions of the country. Brazil, 2022.

Variables		Total(493) n (%)	South (25) n (%)	Southeast (398) n (%)	Midwest (28) n (%)	North (41) n (%)	North East (37) n (%)
1. I perform hand hygiene in the interval between providing care to different patients:	Ever	457 (92.5)	21 (84)	370 (93)	27 (96.4)	35 (94.6)	4 (80)
	Often	34 (6.9)	4 (16)	26 (6.5)	1 (3.6)	22 (5.4)	1 (20)
	Sometimes	2 (0.5)	0	0	0	0	0
	Rarely	1 (0.2)	0	2 (0.5)	0	0	0
	Never	0	0	0	0	0	0
2. I perform hand hygiene after removing gloves:	Ever	420 (85)	22 (88)	337 (84.7)	24 (85.7)	33 (89.2)	4 (80)
	Often	66 (13.4)	3 (12)	55 (13.8)	4 (14.3)	3 (8.1)	1 (20)
	Sometimes	6 (1.2)	0	5 (1.3)	0	1 (2.7)	0
	Rarely	1 (0.2)	0	0	0	0	0
	Never	1 (0.2)	0	1 (0.3)	0	0	0
3. I wash my hands immediately after contact with potentially contaminated biological materials:	Ever	472 (95.5)	23 (92)	380 (95.5)	28 (100)	37 (100)	4 (80)
	Often	16 (3.3)	1 (4)	14 (3.5)	0	0	1 (20)
	Sometimes	2 (0.5)	0	2 (0.5)	0	0	0
	Rarely	0	0	0	0	0	0
	Never	3 (0.7)	1(4)	2 (0.5)	0	0	0
4. Blood collection:	Ever	449 (90.9)	22 (88)	359 (90.2)	28 (100)	35 (94.6)	5 (100)
	Often	27 (5.5)	2 (8)	23 (5.8)	0	2 (5.4)	0
	Sometimes	9 (1.8)	0	9 (2.3)	0	0	0
	Rarely	7 (1.5)	0	7 (1.8)	0	0	0
	Never	1 (0.3)	1 (4)	0	0	0	0
5. Procedures involving the possibility of contact with urine or feces:	Ever	471 (95.4)	24 (96)	377 (94.7)	28 (100)	37 (100)	4 (80)
	Often	12 (2.4)	0	12 (3)	0	0	0
	Sometimes	7 (1.5)	0	7 (1.8)	0	0	1 (20)
	Rarely	3 (0.7)	1 (4)	2 (0.5)	0	0	0
	Never	0	0	0	0	0	0
6. Procedures involving the possibility of contact with the patient's non-intact skin:	Ever	424 (85.9)	23 (92)	339 (85.2)	25 (89.3)	33 (89.2)	4 (80)
	Often	49 (9.9)	1 (4)	43 (10.8)	1 (3.6)	4 (10.8)	0
	Sometimes	15 (3.1)	0	12 (3)	2 (7.1)	0	1 (20)
	Rarely	5 (1.1)	1 (4)	4 (1)	0	0	0
	Never	0	0	0	0	0	0
7. Procedures involving the possibility of contact with the patient's mucosa:	Ever	449 (90.9)	23 (92)	362 (91)	26 (92.9)	34 (91.9)	5 (100)
	Often	32 (6.5)	1 (4)	27 (6.8)	2 (7.1)	2 (5.4)	0
	Sometimes	9 (1.8)	0	7 (1.8)	0	1 (2.7)	0
	Rarely	3 (0.7)	1 (4)	2 (0.5)	0	0	0

	Never	0	0	0	0	0	0
8. Procedures involving the possibility of contact with secretions from the patient's airways:	Ever	461 (93.3)	22 (88)	372 (93.5)	28 (100)	34 (91.9)	2 (40)
	Often	22 (4.5)	2 (8)	17 (4.3)	0	3 (8.1)	1 (20)
	Sometimes	7 (1.5)	0	7 (1.8)	0	0	2 (40)
	Rarely	3 (0.7)	1 (4)	2 (0.5)	0	0	0
	Never	0	0	0	0	0	0
9. Intramuscular or subcutaneous injection:	Ever	253 (51.2)	17 (68)	203 (51)	14 (50)	17 (45.9)	5 (100)
	Often	88 (17.8)	4 (16)	73 (18.3)	6 (21.4)	8 (21.6)	0
	Sometimes	74 (15)	0	57 (14.3)	4 (14.3)	7 (18.9)	0
	Rarely	49 (9.9)	4 (16)	42 (10.6)	2 (7.1)	1 (2.7)	0
	Never	29 (5.9)	0	23 (5.8)	2 (7.1)	4 (10.8)	0
10. Making dressings:	Ever	457 (92.5)	23 (92)	364 (91.5)	28 (100)	37 (100)	5 (100)
	Often	17 (3.4)	1 (4)	16 (4)	0	0	0
	Sometimes	11 (2.2)	0	11 (2.8)	0	0	0
	Rarely	8 (1.6)	1 (4)	7 (1.8)	0	0	0
	Never	0	0	0	0	0	0
11. Cleaning to remove blood:	Ever	455 (92.1)	24 (96)	365 (91.7)	27 (96.4)	34 (91.9)	3 (60)
	Often	24 (4.9)	0	21 (5.3)	1 (3.6)	2 (5.4)	1 (20)
	Sometimes	6 (1.2)	0	6 (1.5)	0	0	1 (20)
	Rarely	6 (1.2)	1 (4)	5 (1.3)	0	0	0
	Never	2 (0.5)	0	1 (0.3)	0	1 (2.7)	0
12. Venous puncture:	Ever	435 (88.1)	23 (92)	349 (87.7)	26 (92.9)	34 (91.9)	5 (100)
	Often	38 (7.7)	1 (4)	32 (8)	2 (7.1)	2 (5.4)	0
	Sometimes	15 (3.1)	0	13 (3.3)	0	1 (2.7)	0
	Rarely	4 (0.8)	1 (4)	3 (0.8)	0	0	0
	Never	1 (0.3)	0	1 (0.3)	0	0	0
13. Contact with blood samples:	Ever	430 (87)	23 (92)	339 (85.2)	26 (92.9)	37 (100)	5 (100)
	Often	36 (7.3)	0	35 (8.8)	1 (3.6)	0	0
	Sometimes	18 (3.6)	1 (4)	16 (4)	1 (3.6)	0	0
	Rarely	6 (1.2)	1 (4)	5 (1.3)	0	0	0
	Never	3 (0.7)	0	3 (0.8)	0	0	0
14. I use a protective mask when there is a possibility of contact with a splash of blood, body fluid, secretion or excretion:	Ever	423 (85.6)	20 (80)	341 (85.7)	23 (82.1)	34 (91.9)	4 (80)
	Often	42 (8.5)	4 (16)	33 (8.3)	3 (10.7)	2 (5.4)	1 (20)
	Sometimes	20 (4)	1 (4)	17 (4.3)	2 (7.1)	1 (2.7)	0
	Rarely	5 (1.1)	0	5 (1.3)	0	0	0
	Never	3 (0.7)	0	2 (0.5)	0	0	0
15. I wear protective eyewear when there is a possibility of contact with a splash of blood, body fluid, secretion or excretion:	Ever	319 (64.6)	18 (72)	247 (62.1)	21 (75)	29 (78.4)	2 (40)
	Often	90 (18.2)	2 (8)	81 (20.4)	3 (10.7)	4 (10.8)	2 (40)
	Sometimes	59 (11.9)	4 (16)	51 (12.8)	2 (7.1)	1 (2.7)	1 (20)
	Rarely	16 (3.2)	0	14 (3.5)	2 (7.1)	0	0
	Never	9 (1.8)	1 (4)	5 (1.3)	0	3 (8.1)	0
16. Wear a protective apron when there is a possibility of splashing with blood, body fluid, secretion or excretion:	Ever	334 (67.6)	16 (64)	261 (65.6)	22 (78.6)	33 (89.2)	2 (40)
	Often	89 (18)	4 (16)	77 (19.3)	3 (10.7)	3 (8.1)	2 (40)
	Sometimes	42 (8.5)	4 (16)	34 (8.5)	3 (10.7)	0	1 (20)
	Rarely	22 (4.5)	1 (4)	21 (5.3)	0	0	0
	Never	6 (1.2)	0	5 (1.3)	0	1 (2.7)	0

17. I use disposable caps and shoe covers when there is a possibility of contact with blood spatter, body fluid, secretion or excretion:	Ever	242 (49)	13 (52)	183 (46)	18 (64.3)	26 (70.3)	2 (40)
	Often	88 (17.8)	4 (16)	73 (18.3)	6 (21.4)	3 (8.1)	2 (40)
	Sometimes	80 (16.2)	5 (20)	65 (16.3)	3 (10.7)	6 (16.2)	1 (20)
	Rarely	51 (10.3)	2 (8)	48 (12.1)	1 (3.6)	0	0
	Never	32 (6.5)	1 (4)	29 (7.3)	0	2 (5.4)	0
18. I do not perform active capping of used needles or passive capping of needles with just one hand:	Ever	256 (51.8)	11 (44)	202 (50.8)	19 (67.9)	22 (59.5)	2 (40)
	Often	65 (13.2)	5 (20)	53 (13.3)	4 (14.3)	2 (5.4)	1 (20)
	Sometimes	45 (9.1)	0	37 (9.3)	0	3 (8.1)	1 (20)
	Rarely	24 (4.9)	4 (16)	22 (5.5)	0	2 (5.4)	0
	Never	103 (20.9)	5 (20)	84 (21.1)	5 (17.9)	8 (21.6)	1 (20)
19. I dispose of needles, blades and other sharps in specific waste containers:	Ever	484 (98)	24 (96)	390 (98)	28 (100)	37 (100)	5 (100)
	Often	7 (1.5)	1 (4)	6 (1.5)	0	0	0
	Sometimes	1 (0.2)	0	1 (0.3)	0	0	0
	Rarely	1 (0.2)	0	0	0	0	0
	Never	1 (0.2)	0	1 (0.3)	0	0	0
20. After work accidents with potentially contaminated sharps, I immediately squeeze the area, then perform antisepsis and apply a bandage:	Ever	217 (43.9)	9 (36)	177 (44.5)	11 (39.3)	18 (48.6)	2 (40)
	Often	17 (3.4)	1 (4)	13 (3.3)	2 (7.1)	1 (2.7)	0
	Sometimes	34 (6.9)	3 (12)	26 (6.5)	2 (7.1)	3 (8.1)	0
	Rarely	42 (8.5)	2 (8)	35 (8.8)	4 (14.3)	1 (2.7)	0
	Never	183 (37)	10 (40)	147 (36.9)	9 (32.1)	14 (37.8)	5 (60)

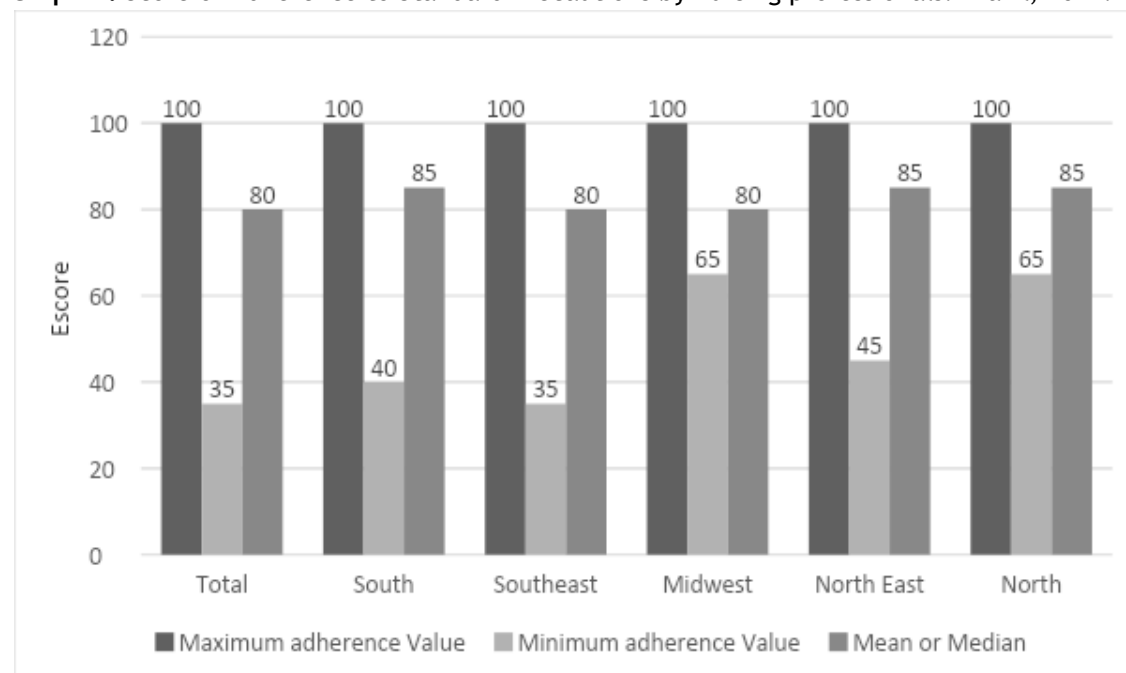
Legend: n = participants; %= percent.

Source: Direct search.

Graph 1 shows the absolute score (maximum, minimum, average or median value) of adherence to

SP by nursing professionals for the total sample and in the five different regions of the country.

Graph 1. Score of Adherence to Standard Precautions by nursing professionals. Brazil, 2022.



Source: Direct search.

In the total sample, 353 (71.6%) professionals adhered and 140 (28.3%) did not. The frequency of professionals who showed non-adherence in the

South, Southeast, Midwest, Northeast and North regions was 7 (1.4%), 122 (24.7%), 5 (1%), 5 (1%), 2 (0.4%), respectively.

The Chi-square Test (X^2) indicated that there is an association between age grouping and adherence to SP in the total sample (X^2 (4) = 18.608; $p < 0.001$) and for the Southeast region (X^2 (4) = 18.436; $p < 0.001$). In the total sample and in the Southeast region, it was observed that the expected score (75 and 61.7) for adherence to SP was higher than the score obtained (64 and 51) for the age group of 18 to 24 years, respectively. And inversely (expected count = 71.4 and 58.9 and obtained count = 85 and 73) for the 40 to 49 age group. This result indicates that young nursing professionals are less likely to adhere to SP, and those over 40 years of age are more likely to do so.

DISCUSSION

The study showed a considerable deficit in the adoption of SP measures during care practice, with greater emphasis on the use of PPE, hand hygiene, handling of sharps and reporting of occupational accidents. These findings are considered worrying in view of the health crisis caused by the COVID-19 pandemic. The study showed a predominance of females, which corroborates the results of other studies, in which women appear as constituting the profile of this category. The prevalence of females in nursing is a reflection of the profession's historical, social and cultural construction. According to data from the Federal Council of Nursing (COFEN), the profession in Brazil is made up of approximately 88.3% of women.^{16,17,18} It should be noted that younger people are less likely to adhere to SP. It was observed that the chances of professionals aged between 18 and 24 years adhering to SP are lower, and the chances of those aged between 40 and 49 years are higher. However, some studies have shown that workers with longer working hours may adhere less to SP measures, as they feel safer.¹⁹ In our findings, there was no association between adherence or non-adherence to SP and working in more than one workplace. A study carried out with nursing professionals showed that most

subjects who suffered an occupational accident had only one employment relationship and worked a weekly workload of up to 36 hours; in another study, it was revealed that, for each hour added to the working day, the chance of suffering a percutaneous accident increased.²⁰ Thus, the existence of only one employment relationship contributes, consequently, to the improvement of the quality of nursing care provided and for the lower occurrence of occupational accidents, since work overload is a facilitating condition for the occurrence of failures.²¹

The nursing team's level of adherence to SP measures was intermediate, indicating that professionals do not fully adhere to SP as recommended. The same result was seen in a study carried out in an Intensive Care Unit (ICU) in the southeastern region of the country by nursing professionals.²² Although adherence to SP is the main strategy to protect the worker from exposure to transmissible pathogens and the patient, adherence is still below the recommended level.²³

Studies point to factors that contribute to low adherence to SP measures, highlighting: lack of time, knowledge, forgetfulness, lack of PPE, uncomfortable equipment, skin irritation, lack of training, conflict between the need to care and self-protection, distance between the PPE and the place of use.²⁴ As for the disposal of sharps, the same should occur in proper containers, with rigid walls and disposed in an appropriate place. In our sample, this disposal happened to 98% of the professionals, being an important achievement for the safety of the professional, as some studies indicate that the improper disposal of sharps is one of the most frequent causes of accidents at work, which can cause damage not only to the health team, as well as other professionals in the hospital environment (cleaning, hospital waste collection, maintenance and laundry).²⁵ Regarding the possible means of transmission and dissemination of COVID-19, which can range from direct or indirect contact, droplets²⁶ and even aerosols,²⁷ hand hygiene at the times

recommended by the WHO and the use of appropriate PPE become essential for the occupational safety of nursing professionals, who remain in constant and direct contact with the patient during care activities, in addition to preventing and controlling transmission cross in health services, key factors for the quality of care.²⁸⁻²⁹

According to Technical Note No. 04/2020 from the National Health Surveillance Agency (ANVISA), updated in February 2021, the SP to be followed for the care of all patients (diagnosed or not with COVID-19) include: hygiene of hands, use of face protection mask, gloves, apron, cap and goggles, in addition to a box for disposal of sharps. It puts information on how important it is in relation to the prevention of the transmission of SARS-CoV-2 and it is mandatory to make it available to all health professionals.

Nursing professionals answered the questionnaire, considering their place of work. They didn't necessarily act on the front lines in the fight against COVID-19. However, it is important to highlight that SP must always be adopted by all professionals in the different regions of the country, regardless of where they work. Noting that although the data collection for this investigation was carried out during the COVID-19 pandemic and being in the five regions of the country, it is worth remembering that there are still other viral, bacterial and fungal infections that have not ceased to coexist and, therefore, it is imperative maintain adherence to SP measures at all times.³⁰

The research had limitations, mainly caused by the design of the chosen study, of the cross-sectional type, which does not allow monitoring of the subjects. Another point is related to the fact that the instrument was applied online, in addition to having been answered by the participants themselves, which may not fully reflect the reality of

compliance with the SP, as well as the issue of heterogeneity in the representativeness of the regions. It was possible to verify a current panorama of adherence to SP by nursing professionals working in different care contexts in the five regions of the country. It is observed in the literature that self-reported adherence rates are significantly higher than those observed in the five regions of the country and in the case of adherence to SP and hand hygiene, the gold standard is the observation of the professionals' practice in their practice setting, therefore, the data can be overestimated.³¹⁻³² The findings of this study can guide new interventions in the permanent education process with a focus on the safety of professionals and patients, analyzing the quality of care. There is also a need for further studies to expand the target audience, as well as to investigate other factors that may be associated with adherence to SP by these professionals. On the other hand, one should also consider the availability and adequate supply of PPE by health services, both public and private, which are also subject to a lack of material and financial resources, especially in times of a pandemic. However, the present study did not identify an association between the nature of the institution where nursing professionals work and adherence to SP.

CONCLUSION

Nursing professionals showed a deficit in adherence to SP during the COVID-19 pandemic in the five regions of the country, with the youngest having the lowest chance of adherence. In this way, it is necessary to raise awareness about the importance of adherence to SP and the development of institutional strategies to improve the level of adherence in the five regions of the country.

RESUMO

Introdução: A COVID-19 é uma doença infecciosa causada pelo vírus SARS-CoV-2, que tem o grau de contaminação muito alta, que coloca os pacientes e profissionais da saúde em risco, assim, questiona-se sobre a taxa de adesão às precauções padrão por profissionais de enfermagem de diferentes contextos do país. **Objetivo:** Identificar a adesão às precauções padrão (PP) pelos

profissionais de enfermagem que atuaram na assistência durante a pandemia de COVID-19 e verificar a associação entre adesão às PP e características sociodemográficas e laborais. **Delineamento:** Estudo observacional transversal, realizado com 493 profissionais de enfermagem atuantes na assistência de enfermagem nas cinco regiões do Brasil. A coleta de dados foi realizada por meio do Google Forms®, utilizando as redes sociais. O recrutamento dos participantes ocorreu no período entre novembro de 2020 a dezembro de 2021. Foi realizada análise descritiva e os resultados apresentados por frequência absoluta e relativa. O teste qui-quadrado de Pearson (X^2) foi utilizado para verificar a associação entre adesão às PP (≥ 75 pontos) e variáveis sociodemográficas e laborais. **Resultados:** Na amostra total, 353 (71,6%) profissionais apresentaram adesão e 140 (28,3%) não. Houve associação entre a faixa etária (40 a 49 anos) com adesão às PP na amostra total. **Implicações:** Os profissionais de enfermagem apresentaram déficit na adesão às PP, sendo os mais jovens menos propensos a aderir, trazendo grandes impactos para a saúde dos profissionais.

DESCRITORES

Controle de Infecção; Equipe de enfermagem; Infecções por Coronavírus; Riscos Ocupacionais; Saúde do trabalhador.

RESUMEN

Introducción: En las últimas décadas, el número de ancianos ha aumentado significativamente en Brasil y comorbilidades como **Introducción:** El COVID-19 es una enfermedad infecciosa provocada por el virus SARS-CoV-2, que presenta un grado de contaminación muy alto, lo que pone en riesgo a pacientes y profesionales de la salud, precauciones estándar por parte de los profesionales de enfermería de diferentes contextos del país. **Objetivo:** Identificar la adherencia a las precauciones estándar (PE) por parte de los profesionales de enfermería que brindaron cuidados durante la pandemia de COVID-19 y verificar la asociación entre la adherencia a las PE y las características sociodemográficas y laborales. **Delineación:** Estudio observacional transversal, realizado con 493 profesionales de enfermería que actúan en el cuidado de enfermería en las cinco regiones de Brasil. La recolección de datos se realizó a través de Google Forms®, utilizando las redes sociales, el reclutamiento de los participantes se realizó entre noviembre de 2020 y diciembre de 2021. Se realizó un análisis descriptivo y los resultados se presentaron por frecuencia absoluta y relativa. Se utilizó la prueba de chi-cuadrado de Pearson (X^2) para verificar la asociación entre la adherencia al SP (≥ 75 puntos) y variables sociodemográficas y laborales. **Resultados:** En la muestra total, 353 (71,6%) profesionales adherieron y 140 (28,3%) no adherieron. Hubo asociación entre el grupo de edad (40 a 49 años) con la adherencia al PS en la muestra total. **Implicaciones:** Los profesionales de enfermería mostraron déficit en la adherencia a la PS, siendo los más jóvenes menos propensos a adherirse, trayendo grandes impactos a la salud de los profesionales.

DESCRIPTORES

Control de Infecciones; equipo de enfermería; infecciones por coronavirus; Riesgos Laborales; Salud del trabajador.

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COLLABORATIONS

DCC: substantial contributions in data collection and data analysis and interpretation. JFCC: substantial contributions in data collection and critical review of the article. LAFG: Substantial contributions in data collection. TAC and DA: substantial contributions in the critical review of the article. MDV: validated the instrument used in data collection. APS: substantial contributions in the conception or design of the work; and critical review of the article. **All authors agree and are responsible for the content of this version of the manuscript to be published.**

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AVAILABILITY OF DATA

The data are available through justifiable consultation with the responsible researcher.

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CONFLICTS OF INTEREST

There are no conflicts of interest to declare.