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ORIGINAL ARTICLE

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Percepções da equipe de enfermagem durante a pandemia por covid-19: estudo transversal

Percepciones del equipo de enfermería durante la pandemia de covid-19: estudio transversal

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ABSTRACT

Justificativa e Objetivos: identificar as percepções dos profissionais de enfermagem que atuaram durante a pandemia de covid-19 em relação às Infecções Relacionadas à Assistência à Saúde (IRAS) e à Higienização das Mãos (HM), classificando-os por profissão e regiões brasileiras. **Método:** estudo observacional foi conduzido de novembro/2020 a dezembro/2021, com a participação de 493 profissionais de enfermagem de todas as regiões do Brasil. Utilizou-se o formulário do Google Forms®, divulgado em redes sociais. Foi aplicado um questionário intitulado "Questionário básico sobre a percepção de profissionais de saúde sobre infecções relacionadas à assistência à saúde e à higienização das mãos". Os resultados foram analisados de forma descritiva, apresentando frequências absolutas e relativas, divididos por grupos de profissionais de enfermagem (enfermeiros, técnicos e auxiliares) e por regiões do Brasil. **Resultados:** Os resultados mostraram que 43,9% dos enfermeiros relataram um impacto muito alto das IRAS na evolução clínica dos pacientes, enquanto apenas 26,7% dos auxiliares e técnicos de enfermagem compartilharam essa percepção. Em relação à HM, 50,8% dos enfermeiros consideraram que é necessário um grande esforço para realizá-la adequadamente, enquanto 68,9% dos auxiliares e técnicos de enfermagem concordaram com essa afirmação. **Conclusão:** a maioria dos profissionais de enfermagem apresentou uma alta percepção sobre HM e IRAS, levando em consideração a profissão e a região geográfica. Esses resultados podem contribuir para o desenvolvimento de estratégias futuras com o objetivo de aprimorar as práticas de HM na assistência de enfermagem, principalmente durante surtos de doenças infecciosas, como a covid-19.

Descritores: *SARS-CoV-2. Higienização das Mãos. Equipe de Enfermagem. Controle de Infecções. Educação Permanente*

ABSTRACT

Background and Objectives: to identify the perceptions of nursing professionals who worked during the covid-19 pandemic regarding Healthcare-Associated Infections (HAIs) and Hand Hygiene (HH), categorizing them by

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profession and region in Brazil. **Method:** An observational study was conducted from November 2020 to December 2021, involving 493 nursing professionals from all regions of Brazil. The Google Forms® platform, disseminated through social media was used. A questionnaire titled "Basic Questionnaire on Healthcare Professionals' Perception of Healthcare-Associated Infections and Hand Hygiene" was administered. The results were analyzed descriptively, presenting absolute and relative frequencies, divided by groups of nursing professionals (nurses, technicians, and assistants) and by regions of Brazil. **Results:** The results showed that 43.9% of nurses reported a significant impact of HAIs on the clinical progression of patients, whereas only 26.7% of nursing technicians and assistants shared this perception. Regarding HH, 50.8% of nurses considered a substantial effort necessary to perform it adequately, while 68.9% of nursing technicians and assistants agreed with this statement. **Conclusion:** most nursing professionals had a high perception of HAIs and HH, considering their profession and geographic region. These findings can contribute to the development of future strategies aimed at improving HH practices in nursing care, particularly during outbreaks of infectious diseases such as covid-19.

Keywords: *SARS-CoV-2. Hand Hygiene. Nursing Team. Infection Control. Continuing Education.*

RESUMEN

Justificación y Objetivos: identificar las percepciones de los profesionales de enfermería que trabajaron durante la pandemia de COVID-19 en relación con las Infecciones Relacionadas con la Atención de la Salud (IRAS) y la Higiene de las Manos (HM), clasificándolos por profesión y región. **Métodos:** se llevó a cabo un estudio observacional desde noviembre/2020 hasta diciembre/2021, con la participación de 493 profesionales de enfermería de las 5 regiones de Brasil. El formulario de Google® fue difundido en redes sociales. Se aplicó un cuestionario: "Cuestionario básico sobre la percepción de los profesionales de la salud sobre infecciones relacionadas con la atención de la salud y la higiene de las manos". Los resultados se analizaron de manera descriptiva, presentando frecuencias absolutas y relativas, divididos por enfermeros, técnicos y auxiliares y por regiones. **Resultados:** 43,9% de los enfermeros informaron impacto muy alto de IRAS en la evolución de los pacientes, mientras que solo 26,7% de los auxiliares y técnicos compartieron esta percepción. En cuanto a la HM, 50,8% de los enfermeros consideraron que se requiere gran esfuerzo para llevarla a cabo adecuadamente, mientras que 68,9% de los auxiliares y técnicos de enfermería estuvieron de acuerdo con esta afirmación. **Conclusión:** la mayoría de los profesionales de enfermería tuvo una percepción alta sobre las IRAS y la HM, teniendo en cuenta la profesión y la región. Esto puede contribuir al desarrollo de estrategias para mejorar las prácticas de HM en la enfermería, especialmente durante enfermedades infecciosas como el covid-19.

Palabras Clave: *SARS-CoV-2. Higiene de las manos. Equipo de Enfermería. Control de Infecciones. Educación Permanente.*

INTRODUCTION

Since the onset of the global crisis caused by Covid-19, 663,640,386 deaths have been recorded worldwide, with Brazil being the fifth country with the most deaths (36,677,844).[1] Covid-19 is caused by SARS-CoV-2, manifested by respiratory symptoms that can progress to death, transmitted by the respiratory route.[2] The survival of SARS-CoV-2 on human skin is 9 hours.[3]

Therefore, the exposure of nursing during the pandemic is undeniable, due to the use of hands as an instrument to perform care, which are vehicles for the transmission of microorganisms[4], as well as being on the front line of care.[5]

Hand hygiene (HH) refers to the action of cleaning hands in order to remove dirt and microorganisms.[6] HH inactivates SARS-CoV-23, as well as being a low-cost and effective protocol for breaking the pathogen transmission cycle.[6] After improvements at HH, there was a reduction in Healthcare-Related Infections (HAIs), which worsen the patient's condition.[7] The transmission of HAIs depends on the contamination of the hands of the professional who omits or improperly performs HH.[8] HAIs increase length of stay, mortality and hospital costs.[9] Despite initial efforts to improve HH in 2020, effectiveness was not sustained, with a drop in 2021.[10] There has been a significant increase in HAIs in the pandemic, demonstrating that the practice should be reinforced.[11]

HH is influenced by cultural and behavioral factors.[4,6] Therefore, it is crucial to evaluate the perception of nurses in relation to HH, considering the influence of these differences. The lack of knowledge is a barrier to adherence to HH, so the aim is to delineate participants' perceptions and impacts on professional behavior.[4] This study covers nursing professionals who work at different levels of care, which differs from the majority of studies, which focus on health professionals who work at more complex levels of care.

The aim of this study was to identify the perceptions of nursing professionals who worked during the covid-19 pandemic about HAIs and HH, classifying them by profession and Brazilian regions.

METHODS

This study was conducted using a cross-sectional observational design.[12] The presentation of the results

followed the Reporting of Observational Studies in Epidemiology (STROBE) and Checklist for Reporting Results of Internet E-Surveys (CHERRIES).

The sample consisted of nursing professionals (assistants, nursing technicians and nurses) in different regions of Brazil (South, Southeast, Midwest, North and Northeast). Recruitment was voluntary, through invitations published on the social networks Facebook®, Instagram®, LinkedIn® and WhatsApp®, during November/2020 to December/2021. The sample size was defined by convenience, comprising the maximum number of participants who accepted voluntarily. The inclusion criteria were: working in health care during the covid-19 pandemic, age ≥18 years and agreement to participate.

We used the "Basic questionnaire on the perception of healthcare professionals regarding healthcare-related infections and hand hygiene", developed by the World Health Organization (WHO), validated by the National Health Surveillance Agency (ANVISA) and the Pan American Health Organization (PAHO) and applied online using Google Forms®. It is self-administered, with 18 multiple-choice questions on a Likert scale.[13-15]

The results were analyzed using descriptive statistics and presented in absolute and relative frequencies, broken down by group of nursing professionals and by region. Pearson's chi-squared test (X^2) and Fisher's exact test were used to verify the association between the variables, with a significance level of $\alpha = 5\%$. Statistical analysis was carried out using the Statistical Package for the Social Sciences (SPSS) version 23 and the Reporting of Observational Studies in Epidemiology (STROBE) and Checklist for Reporting Results of Internet E-Surveys (CHERRIES) checklists were used to present the results.

The study was approved by the Research Ethics Committee of the Ribeirão Preto School of Nursing of the University of São Paulo (CEP-EERP/USP), CAAE No. 38623520.6.0000.5393, and followed the regulatory standards for research involving human beings, in accordance with Resolution CNS 466/12 of the National Health Council. Participants were informed about the objectives and methods and their right to withdraw. The study was conducted in accordance with the required ethical standards (resolutions 466/2012 - 510/2016 - 580/2018, of the Ministry of Health).

RESULTS

Sociodemographic data was collected from 493 nursing professionals. The majority were female (75.8%), from the Southeast region (74.6%) and the state of Sao Paulo (66.8%). Of the nurses, 244 (68.2%) had postgraduate degrees. The majority worked in just one place (79.3%), with 44.3% working in general care institutions in the private sector. While 27.1% of NUR had been working for less than a year, only 15.6% of nursing assistants and technicians had been working for less than a year. Only the South and North regions had more TECs than NUR. The sociodemographic description was published in a previous journal.[16] Below is the sociodemographic

Table 1. Absolute (n) and relative (%) sociodemographic characterization of the sample grouped by professional category. Brazil, 2023.

Variables	Professional Category	
	NURS	TECs
Sex		
Female	267 (74.6)	107 (79.3)
Male	91 (25.4)	28 (20.7)
Age group		
18 to 24	79 (22.1)	26 (19.3)
25 to 29	93 (26)	16 (11.9)
30 to 39	118 (33)	39 (28.9)
40 to 49	57 (15.9)	43 (31.9)
50 to 59	11 (3.1)	11 (8.1)
State of activity		
Sao Paulo	245 (68.4)	85 (63)
Acre	0	0
Maranhao	1 (0.3)	0
Minas Gerais	14 (3.9)	5 (3.7)
Bahia	14 (3.9)	3 (2.2)
Goias	5 (1.4)	0
Mato Grosso do Sul	1 (0.3)	0
Alagoas	0	0
Distrito Federal	18 (5)	4 (3)
Mato Grosso	0	0
Amapa	0	0
Espirito Santo	3 (0.8)	0
Amazonas	1 (0.3)	2 (1.5)
Ceara	3 (0.8)	1 (0.7)
Piaui	0	0
Pernambuco	10 (2.8)	1 (0.7)
Parana	4 (1.1)	1 (0.7)
Para	1 (0.3)	1 (0.7)
Paraíba	3 (0.8)	0
Rio Grande do Norte	0	1 (0.7)
Rio Grande do Sul	4 (1.1)	9 (6.7)
Rondonia	0	0
Roraima	0	0
Santa Catarina	1 (0.3)	5 (3.7)
Sergipe	1 (0.3)	0
Tocantins	0	0
Rio de Janeiro	29 (8.1)	17 (12.6)
Education		
Elementary school. 3rd cycle of basic education (9th grade)	0	2 (1.5)
High school or secondary school	2 (0.6)	92 (68.1)
Higher education. Bachelor's degree	112 (31.3)	36 (26.7)
Postgraduate. Master's or Doctorate	244 (68.2)	5 (3.7)
Number of workplaces		
1	289 (80.7)	103 (76.3)
2	55 (15.4)	26 (19.3)
3	14 (3.9)	6 (4.4)
Type of institution		
General	174 (48.6)	45 (33.3)
University	36 (10.1)	8 (5.9)
District	2 (0.6)	1 (0.7)
Emergency Room	30 (8.4)	15 (11.1)
Long Stay Institution	8 (2.2)	16 (11.9)
Primary Care Center	21 (5.9)	8 (5.9)
Home care	29 (8.1)	18 (13.3)
Obstetrics	7 (2)	4 (3)
Pediatrics	9 (2.5)	5 (3.7)
Surgical Clinic	18 (5)	7 (5.2)
Outpatient	24 (6.7)	8 (5.9)
Nature of the institution		
Public	145 (40.5)	50 (37)
Private	182 (50.8)	63 (46.7)
Public Private	31 (8.7)	22 (16.3)
Length of service (in years)		
< 1	97 (27.1)	21 (15.6)
1 to 2	52 (14.5)	23 (17)
3 to 4	42 (11.7)	18 (13.3)
5 to 6	29 (8.1)	5 (3.7)
7 to 8	23 (6.4)	11 (8.1)
9 to 10	28 (7.8)	15 (11.1)
11 to 15	31 (8.7)	14 (10.4)
16 to 20	31 (8.7)	11 (8.1)
21 to 30	25 (7)	15 (11.1)
≤ 31	97 (27.1)	2 (1.5)

Source: Author data.

Table 2. Absolute (n) and relative (%) frequency of perception of HAIs and HH by nursing professionals in the regions of Brazil and grouped by professional category. Brazil, 2023.

	General n (%)	Professional Category N (%)		Regions of Brazil N (%)				
Variables		**NUR**	**TEC**	**South**	**Southeast**	**Midwest**	**Northeast**	**North**
1. What is the average percentage of hospitalized patients in your institution who develop a healthcare-related infection?								
0% to 10%	222 (44.9)	163 (45.5)	59 (43.7)	8 (32)	182 (45.7)	11 (39.3)	17 (45.9)	4 (80)
11% to 20%	67 (13.6)	51 (14.2)	16 (11.9)	5 (20)	51 (12.8)	4 (14.3)	7 (18.9)	0
21% to 30%	60 (12.1)	49 (13.7)	11 (8.1)	2 (8)	46 (11.6)	5 (17.9)	6 (16.2)	1 (20)
31% to 40%	44 (8.9)	31 (8.7)	13 (9.6)	4 (16)	38 (9.5)	2 (7.1)	0	0
41% to 50%	19 (3.8)	13 (3.6)	6 (4.4)	1 (4)	16 (4)	0	2 (5.4)	0
51% to 60%	24 (4.9)	18 (5.0)	6 (4.4)	1 (4)	18 (4.5)	2 (7.1)	3 (8.1)	0
61% to 70%	21 (4.3)	12 (3.4)	9 (6.7)	3 (12)	15 (3.8)	2 (7.1)	1 (2.7)	0
71% to 80%	14 (2.8)	9 (2.5)	5 (3.7)	1 (4)	12 (3)	1 (3.6)	0	0
81% to 90%	11 (2.2)	8 (2.2)	3 (2.2)	0	10 (2.5)	0	1 (2.7)	0
100%	11 (2.2)	4 (1.1)	7 (5.2)	0	10 (2.5)	1 (3.6)	0	0
2. In general, what is the impact of a healthcare-related infection on the patient's clinical evolution?								
very low	32 (6.5)	21 (5.9)	11 (8.1)	1 (4)	25 (6.3)	0	5 (13.5)	1 (20)
low	58 (11.7)	33 (9.2)	25 (18.5)	3 (12)	46 (11.6)	3 (10.7)	6 (16.2)	0
high	210 (42.5)	147 (41.1)	63 (46.7)	15 (60)	163 (41)	18 (64.3)	11 (29.7)	3 (60)
very high	193 (39.1)	157 (43.9)	36 (26.7)	6 (24)	164 (41.2)	7 (25)	15 (40.5)	1 (20)
3. How effective is hand hygiene in preventing healthcare-related infections?								
very low	14 (2.8)	10 (2.8)	4 (3)	0	13 (3.3)	0	1 (2.7)	0
low	17 (3.4)	10 (2.8)	7 (5.2)	1 (4)	14 (3.5)	1 (3.6)	0	1 (20)
high	88 (17.8)	59 (16.5)	29 (21.5)	6 (24)	65 (16.3)	6 (21.4)	9 (24.3)	2 (40)
very high	374 (75.7)	279 (77.9)	95 (70.4)	18 (72)	306 (76.9)	21 (75)	27 (73)	2 (40)
4. Of all the issues related to patient safety, how important is hand hygiene in the priorities of your institution's management?								
low priority	12 (2.4)	11 (3.1)	1 (0.7)	0	11 (2.8)	0	1 (2.7)	0
moderate priority	23 (4.7)	18 (5.0)	5 (3.7)	2 (8)	16 (4)	2 (7.1)	3 (8.1)	0
high priority	123 (24.9)	92 (25.7)	31 (23)	9 (36)	95 (23.9)	8 (28.6)	11 (29.7)	5 (100)
very high priority	335 (67.8)	237 (66.2)	98 (72.6)	14 (56)	276 (69.3)	18 (64.3)	22 (59.5)	0
5. What is the percentage of cases in which healthcare professionals in your institution sanitize their hands with soap and water or alcoholic preparation when recommended?								
0% to 10%	22 (4.5)	18 (5.0)	4 (3)	0	19 (4.8)	1 (3.6)	2 (5.4)	0
11% to 20%	11 (2.2)	7 (2.0)	4 (3)	0	8 (2)	1 (3.6)	1 (2.7)	1 (20)
21% to 30%	24 (4.9)	20 (5.6)	4 (3)	5 (20)	16 (4)	1 (3.6)	2 (5.4)	0
31% to 40%	19 (3.8)	14 (3.9)	5 (3.7)	1 (4)	14 (3.5)	1 (3.6)	3 (8.1)	0
41% to 50%	43 (8.7)	32 (8.9)	11 (8.1)	2 (8)	36 (9)	1 (3.6)	4 (10.8)	0
51% to 60%	33 (6.7)	26 (7.3)	7 (5.2)	3 (12)	26 (6.5)	2 (7.1)	1 (2.7)	1 (20)
61% to 70%	42 (8.5)	33 (9.2)	9 (6.7)	0	38 (9.5)	2 (7.1)	2 (5.4)	0
71% to 80%	77 (15.6)	55 (15.4)	22 (16.3)	3 (12)	62 (15.6)	5 (17.9)	6 (16.2)	1 (20)
81% to 90%	144 (29.1)	105 (29.3)	39 (28.9)	7 (28)	119 (29.9)	9 (32.1)	8 (21.6)	1 (20)
100%	78 (15.8)	48 (13.4)	30 (22.2)	4 (16)	60 (15.1)	5 (17.9)	8 (21.6)	1 (20)
6. In your opinion, how effective would the following actions be in permanently increasing adherence to hand hygiene practices in your institution?								
a. Your institution's leaders openly support and promote hand hygiene								
1 (not effective)	9 (1.8)	4 (1.1)	5 (3.7)	1 (4)	8 (2)	0	0	0
2	11 (2.2)	11 (3.1)	9 (6.7)	0	8 (2)	2 (7.1)	1 (2.7)	0
3	40 (8.1)	31 (8.7)	24 (17.8)	2 (8)	36 (9)	1 (3.6)	1 (2.7)	0
4	92 (18.6)	68 (19)	97 (71.9)	4 (16)	70 (17.6)	7 (25)	9 (24.3)	2 (40)
5 (very effective)	341 (69.0)	244 (68.2)	5 (3.7)	18 (72)	276 (69.3)	18 (64.3)	26 (70.3)	3 (60)

b. The health service provides alcohol preparation for hand hygiene								
1 (not effective)	4 (0.8)	4 (1.1)	1 (0.7)	0	4 (1)	0	0	0
2	5 (1.0)	4 (1.1)	11 (8.1)	1 (4)	3 (0.8)	0	1 (2.7)	0
3	26 (5.3)	15 (4.2)	13 (9.6)	4 (16)	17 (4.3)	1 (3.6)	3 (8.1)	1 (20)
4	55 (11.1)	42 (11.7)	110 (81.5)	1 (4)	44 (11.1)	5 (17.9)	4 (10.8)	1 (20)
5 (very effective)	403 (81.6)	293 (81.8)	1 (0.7)	19 (76)	330 (82.9)	22 (78.6)	29 (78.4)	3 (60)
c. Hand hygiene posters are displayed at the point of care/treatment to serve as reminders								
1 (not effective)	17 (3.4)	13 (3.6)	4 (3)	1 (4)	13 (3.3)	1 (3.6)	2 (5.4)	0
2	18 (3.6)	12 (3.4)	6 (4.4)	4 (16)	13 (3.3)	0	0	1 (20)
3	48 (9.7)	38 (10.6)	10 (7.4)	1 (4)	44 (11.1)	1 (3.6)	2 (5.4)	0
4	73 (14.8)	62 (17.3)	11 (8.1)	4 (16)	53 (13.3)	8 (28.6)	7 (18.9)	1 (20)
5 (very effective)	337 (68.2)	233 (65.1)	104 (77)	15 (60)	275 (69.1)	18 (64.3)	26 (70.3)	3 (60)
d. Every healthcare professional is trained in hand hygiene.								
1 (not effective)	13 (2.6)	6 (1.7)	7 (5.2)	1 (4)	11 (2.8)	0	1 (2.7)	0
2	14 (2.8)	11 (3.1)	3 (2.2)	2 (8)	10 (2.5)	0	2 (5.4)	0
3	46 (9.3)	33 (9.2)	13 (9.6)	2 (8)	37 (9.3)	5 (17.9)	2 (5.4)	0
4	67 (13.6)	53 (14.8)	14 (10.4)	2 (8)	54 (13.6)	5 (17.9)	5 (13.5)	1 (20)
5 (very effective)	353 (71.5)	255 (71.2)	98 (72.6)	18 (72)	286 (71.9)	18 (64.3)	27 (73)	4 (80)
e. Clear and simple instructions on hand hygiene visible to each healthcare professional								
1 (not effective)	11 (2.2)	7 (2)	4 (3)	1 (4)	8 (2)	1 (3.6)	1 (2.7)	0
2	11 (2.2)	7 (2)	4 (3)	2 (8)	8 (2)	0	0	1 (20)
3	38 (7.7)	28 (7.8)	10 (7.4)	4 (16)	28 (7)	1 (3.6)	5 (13.5)	0
4	81 (16.4)	67 (18.7)	14 (10.4)	3 (12)	66 (16.6)	7 (25)	5 (13.5)	0
5 (very effective)	352 (71.3)	249 (69.6)	103 (76.3)	15 (60)	288 (72.4)	19 (67.9)	26 (70.3)	4 (80)
f. Health professionals regularly receive results of their own hand hygiene performance								
1 (not effective)	70 (14.2)	48 (13.4)	22 (16.3)	4 (16)	57 (14.3)	3 (10.7)	6 (16.2)	0
2	36 (7.3)	24 (6.7)	12 (8.9)	3 (12)	28 (7)	1 (3.6)	3 (8.1)	1 (20)
3	100 (20.2)	69 (19.3)	31 (23)	3 (12)	77 (19.3)	11 (39.3)	9 (24.3)	0
4	53 (10.7)	36 (10.1)	17 (12.6)	1 (4)	43 (10.8)	5 (17.9)	3 (8.1)	1 (20)
5 (very effective)	234 (47.4)	181 (50.6)	53 (39.3)	14 (56)	193 (48.5)	8 (28.6)	16 (43.2)	3 (60)
g. You practice perfect hand hygiene (being a good example to your colleagues)								
1 (not effective)	1 (0.2)	1 (0.3)	11 (8.1)	0	1 (0.3)	0	0	0
2	4 (0.8)	4 (1.1)	29 (21.5)	0	3 (0.8)	0	1 (2.7)	0
3	33 (6.7)	22 (6.1)	95 (70.4)	2 (8)	28 (7)	0	3 (8.1)	0
4	130 (26.3)	101 (28.2)	11 (8.1)	7 (28)	100 (25.1)	11 (39.3)	11 (29.7)	1 (20)
5 (very effective)	325 (65.8)	230 (64.2)	29 (21.5)	16 (64)	266 (66.8)	17 (60.7)	22 (59.5)	4 (80)
h. Patients are encouraged to remind healthcare professionals to sanitize their hands.								
1 (not effective)	73 (14.8)	47 (13.1)	26 (19.3)	5 (20)	58 (14.6)	3 (10.7)	6 (16.2)	1 (20)
2	54 (10.9)	39 (10.9)	15 (11.1)	3 (12)	43 (10.8)	4 (14.3)	4 (10.8)	0
3	86 (17.4)	65 (18.2)	21 (15.6)	4 (16)	71 (17.8)	6 (21.4)	5 (13.5)	0
4	56 (11.3)	38 (10.6)	18 (13.3)	2 (8)	47 (11.8)	2 (7.1)	4 (10.8)	1 (20)
5 (very effective)	224 (45.3)	169 (47.2)	55 (40.7)	11 (44)	179 (45)	13 (46.4)	18 (48.6)	3 (60)
7. How important is it to the head of your department/clinic that you practice excellent hand hygiene?								
1 (no importance)	40 (8.1)	26 (7.3)	14 (10.4)	5 (20)	28 (7)	1 (3.6)	4 (10.8)	2 (40)
2	26 (5.3)	22 (6.1)	4 (3)	1 (4)	22 (5.5)	1 (3.6)	2 (5.4)	0
3	65 (13.2)	50 (14)	15 (11.1)	3 (12)	52 (13.1)	6 (21.4)	4 (10.8)	0
4	74 (15.0)	57 (15.9)	17 (12.6)	3 (12)	60 (15.1)	4 (14.3)	7 (18.9)	0
5 (very important)	288 (58.3)	203 (56.7)	85 (63)	13 (52)	236 59.3)	16 (57.1)	20 (54.1)	3 (60)

8. How important do your colleagues think it is that you practice excellent hand hygiene?								
1 (no importance)	30 (6.1)	22 (6.1)	8 (5.9)	3 (12)	22 (5.5)	1 (3.6)	3 (8.1)	1 (20)
2	30 (6.1)	22 (6.1)	8 (5.9)	2 (8)	27 (6.8)	0	1 (2.7)	0
3	94 (19.0)	70 (19.6)	24 (17.8)	3 (12)	80 (20.1)	6 (21.4)	5 (13.5)	0
4	101 (20.4)	76 (21.2)	25 (18.5)	5 (20)	75 (18.8)	8 (28.6)	13 (35.1)	0
5 (very important)	238 (48.2)	168 (46.9)	70 (51.9)	12 (48)	194 (48.7)	13 (46.4)	15 (40.5)	4 (80)
9. How important patients think it is that you practice excellent hand hygiene?								
1 (no importance)	23 (4.7)	14 (3.9)	9 (6.7)	1 (4)	19 (4.8)	1 (3.6)	2 (5.4)	0
2	29 (5.9)	24 (6.7)	5 (3.7)	2 (8)	23 (5.8)	2 (7.1)	2 (5.4)	0
3	81 (16.4)	61 (17)	20 (14.8)	2 (8)	70 (17.6)	4 (14.3)	4 (10.8)	1 (20)
4	83 (16.8)	68 (19)	15 (11.1)	5 (20)	63 (15.8)	5 (17.9)	9 (24.3)	1 (20)
5 (very important)	277 (56.1)	191 (53.4)	86 (63.7)	15 (60)	223 (56)	16 (57.1)	20 (54.1)	3 (60)
10. How do you rate the efforts required to perform good hand hygiene when caring for patients?								
1 (no importance)	50 (10.1)	35 (9.8)	15 (11.1)	2 (8)	40 (10.1)	2 (7.1)	4 (10.8)	2 (40)
2	30 (6.1)	26 (7.3)	4 (3)	1 (4)	26 (6.5)	2 (7.1)	1 (2.7)	0
3	53 (10.7)	47 (13.1)	6 (4.4)	2 (8)	45 (11.3)	5 (17.9)	1 (2.7)	0
4	85 (17.2)	68 (19)	17 (12.6)	7 (28)	59 (14.8)	6 (21.4)	12 (32.4)	1 (20)
5 (very important)	275 (55.7)	182 (50.8)	93 (68.9)	13 (52)	228 (57.3)	13 (46.4)	19 (51.4)	2 (40)
11. What is the average percentage of cases in which you sanitize your hands either by rubbing them with alcohol or by sanitizing your hands with soap and water when recommended?								
0% to 10%	8 (1.6)	8 (2.2)	1 (0.7)	0	8 (2)	0	0	0
11% to 20%	4 (0.8)	3 (0.8)	1 (0.7)	0	4 (1)	0	0	0
21% to 30%	3 (0.6)	2 (0.6)	2 (1.5)	3 (1)	1 (0.3)	0	1 (2.7)	0
31% to 40%	12 (2.4)	10 (2.8)	1 (0.7)	4 (2)	7 (1.8)	1 (3.6)	2 (5.4)	0
41% to 50%	4 (0.8)	3 (0.8)	1 (0.7)	0	4 (1)	0	0	0
51% to 60%	17 (3.4)	16 (4.5)	7 (5.2)	0	13 (3.3)	1 (3.6)	3 (8.1)	0
61% to 70%	18 (3.6)	11 (3.1)	14 (10.4)	0	15 (3.8)	1 (3.6)	2 (5.4)	0
71% to 80%	45 (9.1)	31 (8.7)	39 (28.9)	4 (16)	39 (9.8)	0	2 (5.4)	0
81% to 90%	177 (35.8)	138 (38.5)	69 (51.1)	5 (20)	152 (38.2)	14 (50)	5 (13.5)	1 (20)
100%	205 (41.5)	136 (38)	1 (0.7)	13 (52)	155 (38.9)	11 (39.3)	22 (59.5)	4 (80)

Source: Author data

characterization with absolute and relative frequency subdivided into NUR and NUR.

Below are data by professional category and Brazilian regions. While 43.9% of nurses (NUR) said that the impact of HAIs on the patient's clinical evolution is very high, only 26.7% of nursing technicians and assistants (TEC) said the same. While 50.8% of NUR said that it takes a lot of effort to perform HH properly, only 68.9% of TECs said the same.

DISCUSSION

The sociodemographic and occupational characteristics of the participants in this study are in line with the literature. Most of the participants (374; 75.8%) were female, aged between 30 and 39 (157; 31.8%), and were nurses (358; 72.6%).[17,18]

Most nursing professionals in this study had a high perception of HH and HAI. A study carried out in Iran showed that most nursing professionals had a good perception of HH and HAI.[17] In this study, 157 (43.9%) of the nurses recognized that the impact of HAIs is very high and only 36 (26.7%) of the nursing assistants and technicians said the same. While 93 (68.9%) of the assistants and technicians said that a great deal of effort was needed to carry out a good HH, 182 (50.8%) of the nurses reported the same.

The professionals' perception is related to the level of training they have had access to.[17] Therefore, the greater effort to perform a good HH and the level of perception observed in this study can be justified, given that 249 (50.4%) have postgraduate degrees.

It was observed that 222 (44.9%) of the participants reported that only 0% to 10%

of the patients admitted to the institution where they work develop HAIs. Although there is evidence that higher levels of perception contribute to better adherence to protocols,[19] in contrast to the 374 (75.7%) who recognize the efficacy of HH in reducing HAIs, 288 (58.41%) do not perform HH in 100% of the recommended cases. Therefore, there is a contradiction between the high level of perception, the lower adherence to HH and the low development of HAIs within the institution where they work.

There is evidence that patient feedback improves professionals' HH.[20] In agreement, 277 (56.1%) participants said that patients attach great importance to HH and 224 (45.3%) considered it effective to encourage patients to remind health professionals to perform it. In addition, only 78 (15.8%) said that colleagues in the institution carry out HH in 100% of recommended cases, showing a possible lack of encouragement and example among peers, due to the influence of other professionals on their own clinical practice.[21]

Most of the participants in this and another study[18] pointed to several strategies as very effective for permanently increasing HH in institutions, such as support from leaders, reminders and HH education. This is because these strategies provide reflections and improvements on HH itself.[22] Authors emphasizes that physical structure and the availability of materials are essential for adequate HH, although studies point to a lack of resources.[23]

The perceptions of HAIs and HH described collaborated to identify possible facilitators in the practice of HH, from the perspective of nursing professionals. Considering the fundamental role of HH and nursing in reducing HAIs, the results may contribute to the development of future strategies aimed at improving HH practices in nursing care in global emergencies, such as the COVID-19 pandemic. No association was found between region and level of perception in this study, which only included nursing professionals working during the pandemic. It is worth noting that most of the participants were from the southeast and the state of São Paulo. Although the purpose of the study was to reach all Brazilian regions, some states did not respond to the questionnaire and the other regions had few responses. Although this limitation of the sample is not representative, it offers an initial view of how these aspects may be reflected in the different states and regions. In this context, it suggests the need to carry out similar studies with larger and more representative samples. The data collection period was justified by the difficulty in keeping up with new evidence and changes in the face of outbreaks of infectious diseases, such as COVID-19.[19] The remote modality overcame geographical barriers. The instrument used for data collection is easy to apply and could be reproduced in other studies. However, daily reminders were necessary to ensure the volunteers' participation, and the use of an online, self-administered questionnaire compromised the veracity of the answers.

In addition, it should be noted that most nursing professionals had a high perception of HH and HAI, considering their profession and geographical region. These results may contribute to the development of future strategies aimed at improving HH practices in nursing care, especially during outbreaks of infectious diseases such as COVID-19.

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AUTHORS' CONTRIBUTIONS

Ludmila Albano de Felice Gomes contributed to the bibliographic research, writing the summary, introduction, methodology, discussion, interpretation and description of results, preparation of tables, conclusions, review and statistics. **Jéssica Fernanda Corrêa Cordeiro** contributed to project administration, bibliographic research, writing the abstract, introduction, methodology, discussion, interpretation and description of results, conclusions, review and statistics. **Daniela Corrêa Cordeiro** contributed to writing the summary, methodology, interpretation of results, conclusions, review and statistics. **Tatiana Areas da Cruz** contributed to writing the summary, review and statistics. **Denise de Andrade** contributed to project administration, funding acquisition, literature research, review and statistics. **André Pereira dos Santos** contributed to project administration, bibliographic research, writing the abstract, introduction, methodology, discussion, interpretation and description of results, conclusions, review and statistics.

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