

Specific admission nursing consultation for SARS-CoV-2 in prison units: prevalence and associated factors

Consulta de enfermagem admissional específica para o SARS-CoV-2 em unidades prisionais: prevalência e fatores associados

Consulta de enfermería de admisión específica para el SARS-CoV-2 en unidades penitenciarias: prevalencia y factores asociados

Gláucia Oliveira Abreu Batista Meireles^a 

Ketlen Raiara Ferreira Santos Freires^a 

Cácia Régia de Paula^b 

Águeda Maria Ruiz Zimmer Cavalcante^a 

Letícia Cortaza Ramírez^c 

Márcia Alves Dias de Matos^d 

Nara Rubia de Freitas^e 

Marcos André de Matos^a 

How to cite this article:

Meireles GOAB, Freires KRFS, Paula CR, Cavalcante AMRZ, Ramirez LC, Matos MAD, et al. Specific admission nursing consultation for SARS-CoV-2 in prison units: prevalence and associated factors. Rev Gaúcha Enferm. 2024;45:e20240048. <https://doi.org/10.1590/1983-1447.2024.20240048.en>

ABSTRACT

Objective: To estimate the prevalence and factors associated with the performance of specific admission nursing consultations for SARS-CoV-2 in individuals deprived of liberty with COVID-19 in prison units in Central Brazil.

Method: Analytical cross-sectional study conducted between May and September 2020 through individual interviews and lateral flow immunochromatography tests to detect IgM/IgG antibodies for SARS-CoV-2. The analysis was performed using the Chi-square or Fischer's exact tests, with the outcome being the specific admission nursing consultation for SARS-CoV-2.

Results: Among the 1,272 individuals investigated, 21.3% (95% CI: 19.1-23.6) tested positive for antibodies against SARS-CoV-2. Of these, 10.3% (95% CI: 7.0-14.6) underwent a specific nursing consultation for SARS-CoV-2. The most prevalent signs and symptoms were loss of taste (33.2%) and smell (32.8%), body aches (28.8%), and fever (28.4%). The analysis indicated associations between contact with symptomatic COVID-19 case ($p=0.039$), contact in the yard with a prisoner with COVID-19 ($p=0.012$), and sore throat ($p=0.010$), with the outcome.

Conclusions: The low prevalence of specific nursing consultations for SARS-CoV-2 and the high prevalence of COVID-19 reinforce the need for mandatory implementation of this strategy in groups living in closed environments. Furthermore, nursing consultations based on the nursing process must be adopted as a public health measure.

Descriptors: Nursing. Office Nursing. SARS-CoV-2. Prisoners.

RESUMO

Objetivo: Estimar a prevalência e fatores associados à realização da consulta de enfermagem admissional específica para o SARS-CoV-2 em indivíduos privados de liberdade com COVID-19 em unidades prisionais do Brasil Central.

Método: Estudo transversal analítico conduzido entre maio e setembro de 2020 por meio de entrevistas individuais e testes de imunocromatografia de fluxo lateral para detecção de anticorpos IgM/IgG para SARS-CoV-2. A análise foi realizada por meio dos testes Qui-quadrado ou Exato de Fischer, sendo considerado desfecho a consulta de enfermagem admissional específica para o SARS-CoV-2.

Resultados: Entre os 1.272 investigados, 21,3%; (IC 95%: 19,1-23,6) testaram reagentes para anticorpos contra o SARS-CoV-2. Destes, 10,3% (IC 95%: 7,0-14,6) realizaram a consulta de enfermagem específica para SARS-CoV-2. Os sinais e sintomas mais prevalentes foram diminuição do paladar (33,2%) e do olfato (32,8%), dores no corpo (28,8%) e febre (28,4%). A análise apontou associações entre contato com caso sintomático para COVID-19 ($p=0,039$), contato no pátio com preso com COVID-19 ($p=0,012$) e dor de garganta ($p=0,010$), com o desfecho.

Conclusões: A baixa prevalência de consulta de enfermagem específica para o SARS-CoV-2 e a alta prevalência de COVID-19 reforçam a necessidade de implementação obrigatória dessa estratégia em grupos que vivem em ambientes fechados. Ademais, a consulta de enfermagem baseada no processo de enfermagem deve ser adotada como medida de saúde pública.

Descritores: Enfermagem. Consulta de enfermagem. SARS-CoV-2. Prisioneiros.

RESUMEN

Objetivo: Estimar la prevalencia y los factores asociados a la realización de una consulta de enfermería de ingreso específica para SARS-CoV-2 en personas privadas de libertad con COVID-19 en unidades penitenciarias del Centro de Brasil.

Método: Estudio analítico transversal realizado entre mayo y septiembre de 2020 mediante entrevistas individuales y pruebas de inmunocromatografía de flujo lateral para detección de anticuerpos IgM/IgG contra SARS-CoV-2. El análisis se realizó mediante las pruebas de Chi-cuadrado o exacta de Fischer, considerando como resultado la consulta de enfermería específica de ingreso por SARS-CoV-2.

Resultados: Entre los 1.272 investigados, el 21,3%; (IC del 95%: 19,1-23,6) probaron reactivos para detectar anticuerpos contra el SARS-CoV-2. De ellos, el 10,3% (IC 95%: 7,0-14,6) realizó alguna consulta de enfermería específica por SARS-CoV-2. Los signos y síntomas más prevalentes fueron disminución del gusto (33,2%) y del olfato (32,8%), dolores corporales (28,8%) y fiebre (28,4%). El análisis mostró asociaciones entre el contacto con un caso sintomático de COVID-19 ($p=0,039$), el contacto en el patio con un preso con COVID-19 ($p=0,012$) y el dolor de garganta ($p=0,010$) con el desenlace.

Conclusiones: La baja prevalencia de consultas específicas de enfermería por SARS-CoV-2 y la alta prevalencia de COVID-19 refuerzan la necesidad de la implementación obligatoria de esta estrategia en grupos que viven en ambientes cerrados. Además, se debe adoptar como medida de salud pública la consulta de enfermería basada en el proceso de enfermería.

Descriptores: Enfermería. Enfermería de Consulta. SARS-CoV-2. Prisioneros.

^a Universidade Federal de Goiás. Faculdade de Enfermagem. Programa de Pós-Graduação em Enfermagem e Saúde. Goiânia, Goiás, Brasil.

^b Universidade Federal de Jataí. Departamento de Saúde Coletiva. Jataí, Goiás, Brasil.

^c Universidade Veracruzana. Faculdade de Enfermagem. Campus Minatitlán. Veracruz, México.

^d Universidade Federal de Goiás. Instituto de Patologia Tropical e Saúde Pública. Departamento de Virologia. Goiânia, Goiás, Brasil.

^e Universidade Federal de Goiás. Hospital das Clínicas. Goiânia, Goiás, Brasil.

INTRODUCTION

In January 2020, the new coronavirus (SARS-CoV-2) was identified by the International Committee on Taxonomy of Viruses (ICTV) as the causative agent of COVID-19⁽¹⁻³⁾, a disease with a wide spectrum of clinical manifestations⁽⁴⁻⁷⁾. After four years of research into this new etiological agent, there is extensive evidence that about 30% of those infected are asymptomatic, although they can transmit the virus⁽⁷⁾. The virus is spread through the air^(5,7), which makes individuals living in closed environments vulnerable to infection^(8,9).

Globally, prisons, due to overcrowding and unsanitary and unhygienic architectural conditions, represent a favorable scenario for the spread of respiratory infectious diseases^(8,9), and, therefore, epicenters for SARS-CoV-2 infection⁽¹⁰⁻¹⁶⁾. Considering the conditions of imprisonment at a national level, the situation is similar, since Brazilian prisons have a capacity up to 10 times higher than established standards⁽¹⁷⁾.

Given the magnitude of the vulnerability of the Persons Deprived of Liberty (PDL), associated with the risk of transmission among workers in prison units and the surrounding community, several measures to prevent and control the spread of SARS-CoV-2 have been announced by government agencies worldwide⁽¹⁸⁾. In the same perspective, Brazil has reinforced preventive measures, especially through the National Justice Council⁽¹⁹⁾. These recommendations are similar to those for the general population, namely, individual protection measures (hand hygiene, respiratory etiquette, use of masks, etc.), environmental measures (ventilation, cleaning and disinfection procedures), physical distancing measures (especially for those at risk of exposure), access restrictions (lockdown), and movement limitations (social isolation)^(10,12-15).

Currently, in the penitentiary environment, individual, environmental and community prevention strategies have not proven to be effective and, therefore, still represent a significant challenge for global public health^(13,16,20,21). Thus, nursing consultations upon admission to prison units have been consolidated as the main strategy to cope with the pandemic and other respiratory diseases, since they provide continuity of care. A specific admission nursing consultation for SARS-CoV-2 is considered to be the clinical and epidemiological nursing assessment within the first 12 hours of admission to the prison unit with testing for IgM/IgG antibodies against SARS-CoV-2, which being a responsibility of the nurse, including legal support⁽²²⁻²⁴⁾.

Several authors point out that in the pandemic scenario, nursing care, with the use of the nursing process, significantly contributed to strengthening practices to combat viral

spread in various environments, such as penitentiaries^(23,24). However, globally, the shortage of health professionals, particularly nurses, the absence of care protocols, and the structural, architectural and living conditions of prison units, as well as inequities in access and financial investments in health, contributed to the weakening of nursing consultations, impacting the high rates of morbidity and mortality from COVID-19 among inmates and prison system workers⁽²⁵⁾.

There is a scarcity of studies on nursing consultations in the pandemic scenario in prison units, and the existing ones are methodological reports of experiences and case studies^(26,27). That said, the researchers have raised the question: What is the prevalence and factors associated with performing specific admission nursing consultations for SARS-CoV-2 in PDL with COVID-19?

It is believed that this study is innovative in expanding knowledge, as it seeks to understand a strategy that contributes to breaking the chain of introduction and dissemination of highly transmissible pathogens in incarceration environments, with subsequent systematic health care. It is expected to offer new perspectives and significant contributions to public health nursing practice, potentially used in prioritizing preventive strategies, evaluating public policies, and allocating human and financial resources for common epidemics in prison environment, such as tuberculosis and influenza, and for future pandemics.

In view of the above, the objective was to estimate the prevalence and factors associated with the implementation of specific admission nursing consultations for SARS-CoV-2 in individuals deprived of liberty with COVID-19 in prison units in Central Brazil.

METHOD

This is a cross-sectional analytical study within a part of a larger study entitled "Epidemiological and clinical screening of SARS-CoV-2 infection in individuals deprived of liberty and workers in Central Brazil". The study was conducted from May 10 to September 14, 2020, in the largest prison complex in the Central-West region of Brazil. Located in the rural area of the metropolitan region of the capital, it houses 5,267 individuals deprived of liberty, either provisionally or definitively, across seven prison units.

The sample for the larger study was calculated considering a prevalence of COVID-19 among PDL of 31.64% (95% CI: 28.44-34.83)⁽²¹⁾, an acceptable absolute margin of error for the prevalence of the disease of 5%, and a 95% confidence interval. Furthermore, 10% was added for losses and refusals, totaling 1,272 individuals. The following inclusion criteria

were considered for data collection: being incarcerated in one of the prison units for more than six months, being over 18 years old, and testing positive for SARS-CoV-2. The exclusion criteria were: being visibly under the influence of alcohol and/or other drugs that compromise cognition; having severe hearing loss and/or speech impairment that made it difficult or impossible to conduct the interview and data collection, and also having a psychiatric illness that hindered the interview and data collection. This information was obtained with the support of the nurse responsible for the prison health unit through analysis of the PDL registration form at the Basic Health Unit.

The outcome variable was the specific admission nursing consultation for SARS-CoV-2 characterized by clinical and epidemiological evaluation in the first 12 hours of admission to the prison unit with testing for IgM/IgG antibodies against SARS-CoV-2⁽²²⁾. Predictor variables included sociodemographic characteristics (sex, age, education level, place of birth, religion, self-declared race/color, monthly income and marital status); clinical data (fever, chest pain, difficulty breathing, cough, sore throat, nausea/vomiting, loss of taste or smell, abdominal pain, myalgia, headache and diarrhea) and environmental data (contact time, in the yard, with the lawyer, with the family).

Before data collection, a pilot test was conducted with 20 individuals deprived of liberty to plan the operational stages of the study, establish biosafety measures in the pandemic context and adjust the data collection instrument. It is worth noting that these subjects were not part of the final sample of the study.

After meetings with the team of prison officers and health-care professionals, the research subjects were randomly selected to move to the entrance door of their cell. At this time, the study objectives, risks and benefits of participating were read to the participants, and those who agreed signed the informed consent form. They were then sent to a private location, away from the prison officers to minimize response bias and discomfort, where a clinical evaluation was performed by the research nurses. In addition, an in-person interview was conducted using an instrument containing questions with sociodemographic variables (sex, age, education level, nationality, religion, self-declared race/color, monthly income and marital status); clinical (fever, chest pain, difficulty breathing, cough, sore throat, nausea/vomiting, loss of taste or smell, abdominal pain, myalgia, headache and diarrhea) and environmental (contact time, in the yard, with the lawyer, with the family).

Regardless of whether they were symptomatic or not, 10 ml of blood was collected from all 1,272 individuals deprived of liberty, using disposable syringes and needles. The blood obtained was stored in test tubes identified with the initials of the name and the identification code (ID) of the participant according to the number of the data collection instrument. The tubes with the blood were placed in thermal boxes and transported to the Multiuser Laboratory of Clinical Processing and Analysis of the *Universidade Federal de Goiás*, where they were centrifuged, and the serum was stored in aliquots.

Subsequently, laboratory tests were performed on all samples to detect IgM/IgG antibodies against SARS-CoV-2, using the lateral flow immunochromatographic test, according to the manufacturer's instructions. Although the tests could have been performed with whole blood, serum was chosen to enhance the sensitivity and specificity of detection⁽⁵⁾.

All results were sent to the health administration of the Goiás prison system, and subsequently, the research assistants carried out the notification through e-SUS (an online tool for recording notification of mild flu-like cases, suspected and confirmed cases of the new Coronavirus – COVID-19 in Brazil). Participants who presented a reactive result were sent to specific isolation areas and received care from the health teams of the prison units.

All data were entered, processed and analyzed using the SPSS program version 20.0 (SPSS Inc., Chicago, USA). Statistical analysis was performed with the description of the categorical variables, using absolute and relative frequencies. The prevalence of admission nursing consultation specific for SARS-CoV-2 infection was calculated with a 95% confidence interval (95% CI). The Kolmogorov-Smirnov test was used to verify whether the variables followed a normal distribution. Bivariate analysis was performed using the nonparametric chi-square test (χ^2) and Fisher's exact test to analyze the possible association between the predictor variables and the performance of the specific admission nursing consultation for SARS-CoV-2, considering a significance level of 5%.

Regarding ethical aspects, this research was approved by the Research Ethics Committee of the *Universidade Federal de Goiás* - Opinion No. 2,500,582. All research assistants, undergraduate or graduate nursing students, were duly qualified to perform COVID-19 tests and had previous experience in studies with PDL. Furthermore, throughout the process of data collection, processing, and laboratory analysis, biosafety, patient safety, and environmental cleaning measures were respected, as well as the guidelines to cope with the spread of SARS-CoV-2⁽⁸⁾.

RESULTS

After applying the eligibility criteria, 1,272 participants responded to the data collection instrument and were tested for IgM/IgG antibodies against SARS-CoV-2. Of the total, 271 individuals deprived of liberty were reactive, resulting in a prevalence of COVID-19 of 21.3% (95% CI: 19.1-23.6). Of these, 10.3% (95% CI: 7.15%-12.2) underwent a specific admission nursing consultation for SARS-CoV-2, as observed in Figure 1.

Table 1 presents the sociodemographic characteristics of 271 individuals deprived of liberty who tested positive for SARS-CoV-2 and categorized as those who underwent and those who did not undergo nursing consultation. Most participants were ≤ 29 years old (52.0%), had a monthly income in BRL ≤ 100 (68.2%), self-declared brown/dark skin color or race (66.0%), and were single (55.7%). There was no statistical association between undergoing a specific nursing consultation for SARS-CoV-2 and sociodemographic characteristics in this study (Table 1).

Considering the 271 individuals who tested positive for SARS-CoV-2, it was observed that 35.6% had some type of

contact with another symptomatic inmate for COVID-19 within the prison unit. Analyzing this data, compared to the total number of individuals who underwent nursing consultation, the highest frequency of contact was among individuals who underwent nursing consultation ($p=0.039$). We can also highlight that the most frequent type of contact was contact with PDL in the prison unit yard (5.5%), when compared to those who underwent the specific admission nursing consultation for SARS-CoV-2 (4.0%) ($p=0.012$) (Table 2).

Table 3 shows the signs and symptoms presented by the PDL participating in the study, and categorized into those who underwent and those who did not undergo a specific admission nursing consultation for SARS-CoV-2. The most frequent clinical manifestations were loss of taste (33.2%) and smell (32.8%), body aches (28.8%) and fever (28.4%). Only sore throat was reported more by those who had a nursing consultation upon admission to the prison than by those who did not ($p=0.010$).

Figure 1 – Box-plot distribution of SARS-CoV-2 infection (2) and specific admission nursing consultation for SARS-CoV-2. Goiânia, Goiás, Brazil, 2020.

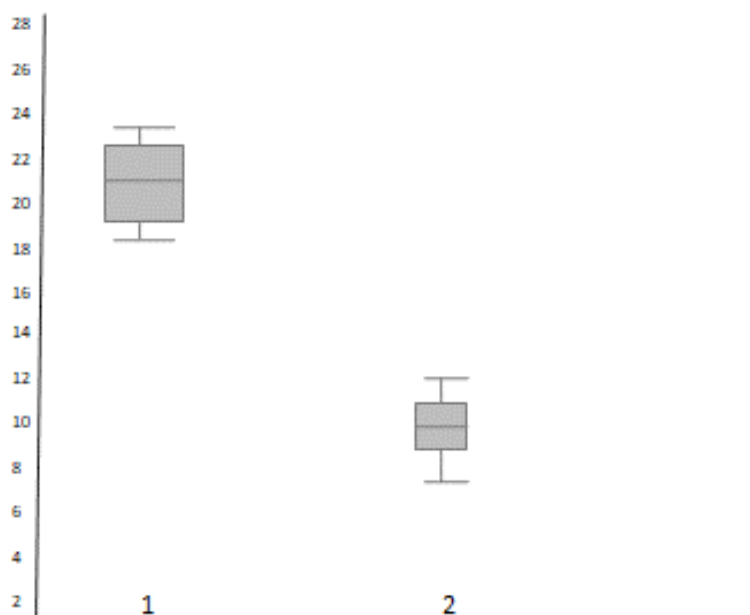


Table 1 – Sociodemographic characteristics of 271 individuals deprived of liberty who tested positive for SARS-CoV-2. Goiânia, Goiás, Brazil, 2020.

Variables	Total (n=271)		Underwent nursing consultation				p-value
			No (n=243)		Yes (n=28)		
	n	%	n	%	n	%	
Skin Color or Race(n=212)							0.668*
White	39	18.4	36	18.7	3	15.8	
Black	28	13.2	26	13.5	2	10.5	
Mixed/Brown	140	66.0	127	65.8	13	68.4	
Yellow	5	2.4	4	2.0	1	5.3	
Education level (years of study) (n=249)							0.673*
≤1 year	7	2.8	6	2.7	1	4.2	
2- 8	62	24.9	57	25.3	5	20.8	
9-11	76	30.5	70	31.1	6	25.0	
≥12	104	41.8	92	40.9	12	50.0	
Age (years)							0.567**
≤29	141	52.0	125	51.4	16	57.1	
≥ 30	130	48.0	118	48.6	12	42.9	
Income (BRL) (n=151)							0.925*
≤100	103	68.2	93	67.4	10	76.9	
100-1.000	34	22.5	31	22.5	3	23.1	
2000-3000	10	6.6	10	7.2	0	0.0	
≥4000	4	2.6	4	2.9	0	0.0	
Marital status(n=212)							0.295*
Married/Stable Union	79	37.3	73	37.8	6	31.4	
Single	118	55.7	107	55.4	11	58.0	
Widowed	2	0.9	1	0.5	1	5.3	
Separated/Divorced	13	6.1	12	6.3	1	5.3	

Values presented in absolute and relative frequency(%). P-value obtained by *Fisher's exact test or **Person's Chi-Square test, both with a 5% significance level. Discrepancies in the total sample refer to refusals to respond.
Source: Prepared by the authors.

Table 2 – Behavioral characteristics related to contact with symptomatic and/or confirmed COVID-19 individuals among 271 Persons Deprived of Liberty seropositive for SARS-CoV-2. Goiânia, Goiás, Brazil, 2020.

Variables	Total (n=271)		Underwent nursing consultation				p-value
			No (n=243)		Yes (n=28)		
	n	%	n	%	n	%	
Contact with Symptomatic COVID-19 Case (n=264)							0.039*
Yes	94	35.6	81	34.0	13	50.0	
No	110	41.7	105	44.1	5	19.2	
Don't know	67	22.7	52	21.8	8	30.8	
Contact time with Symptomatic (n=59)							0.104**
< 1h	3	1.3	2	0.9	1	42.2	
>5h	53	20.7	45	19.3	8	34.8	
Don't know	3	1.2	3	1.3	0	0	
Contact with confirmed COVID-19 case(n=267)							0.110*
Yes	70	26.2	59	24.4	11	44.0	
No	135	50.6	126	52.1	9	36.0	
Type of contact with confirmed COVID-19 case (n=256)							0.012*
Yard	14	5.5	13	5.6	1	4.0	
Health center/prison	9	3.5	8	3.5	1	4.0	
Family/lawyer	4	1.6	1	0.4	3	12.0	
Others	9	35	9	3.9	0,0	0.0	
Not applicable	170	66.4	157	68.0	25	100	
None	50	19.5	43	18.6	7	28.0	
Don't know	62	23.2	57	23.6	5	20.0	
Contact time with confirmed COVID-19 case(n=58)							0.205*
≥ 1 h	3	1.2	2	0.9	1	4.3	
< 5h	53	20.7	45	19.3	8	34.8	
Don't know	2	0.8	2	0.9	0	0.0	

Values presented in absolute and relative frequency(%). P-valueobtained by *Fisher's exact test or **Person's Chi-Square test, both with 5% significance level. Discrepancies in the total sample refer to refusals to respond. Source: Prepared by the authors.

Table 3 – Signs and symptoms of COVID-19 in 271 Individuals Deprived of Liberty who tested positive for SARS-CoV-2. Goiânia, Goiás, Brazil, 2020.

Variables	Total (n=271)		Underwent nursing consultation				p-value
			No (n=243)		Yes (n=28)		
	n	%	n	%	n	%	
Loss of taste	90	33.2	77	31.7	13	46.4	0.117**
Loss of smell	89	32.8	78	32.1	11	39.3	0.443**
Myalgia	78	28.8	66	27.2	12	42.9	0.082**
Body temperature> 37.8° C	77	28.4	68	28.0	9	32.1	0.644**
Difficulty breathing	60	22.1	52	21.4	8	28.6	0.387**
Cough							
Without sputum	50	18.5	47	19.3	3	10.7	0.188*
With sputum	32	11.8	28	11.5	4	14.3	
With hemoptysis	6	2.2	4	1.6	2	7.1	
Sore throat	49	18.1	39	16.0	10	35.0	0.010**
Headache	49	18.1	46	19.0	3	10.7	0.436*
Abdominal pain	30	11.1	25	10.3	5	17.9	0.213*
Chest pain	12	13.9	11	14.5	1	10.0	1.000*
Diarrhea	28	10.3	23	9.5	5	17.9	0.186*
Nausea/vomiting	24	8.9	21	8.6	3	10.7	0.724*

Values presented in absolute and relative frequency (%). p-value obtained by *Fisher's exact test or **Pearson Chi-Square test, both with 5% significance level.

Source: Prepared by the authors.

DISCUSSION

Prevention and control measures for SARS-CoV-2 infection in penitentiary environments have been the subject of extensive debate in both national^(21,27) and international^(17-25,28-30) literature since the beginning of the pandemic, especially nursing consultation with serological screening upon admission of PDL to prison units. That said, our findings provide important scientific evidence and lessons for nursing to face future outbreaks of respiratory diseases.

SARS-CoV-2 was detected in 271 participants, resulting in a prevalence of 21.3% (95% CI: 19.1-23.7). According to information from the National Penitentiary Department, in 2020, the period in which this investigation was conducted, 41,971 cases of COVID-19 were recorded in this

population. This means that the prevalence of COVID-19 in the Brazilian prison population at that time was 5.98% (95% CI: 5.73-6.23)⁽²⁵⁾, that is, much lower than that estimated in this study. Considering that Brazilian prisons have the same structural and architectural deficiencies, this higher estimated prevalence of SARS-CoV-2 compared to the national rate of the Brazilian prison population may be related to the low coverage of specific admission nursing consultations, and demonstrates the need for investments in this low-cost, easy-to-implement strategy that does not require advanced technologies and provides continuity of care^(21,22,27).

Although the National Policy for Comprehensive Health Care for Persons Deprived of Liberty (*Política Nacional de Atenção Integral à Saúde das Pessoas Privadas de Liberdade - PNAISP*) is based on the principles of comprehensiveness and

intersectorality, effectively guaranteeing the constitutional right to health of PDL is still a significant challenge. Thus, discussions are necessary about strategies that contribute to the implementation of the PNAISP, with admission nursing consultations being a successful experience in controlling the high rates of disease in this group^(16,22).

It was found that among individuals deprived of liberty infected with SARS-CoV-2, 10.3% (95% CI: 7.0-14.6) underwent a specific nursing consultation upon admission. This rate is extremely low, worrying and indicative of the failure by prison system managers, as several authors demonstrate that the lack of prioritization of nursing consultation and subsequent interventions in a timely manner can substantially impact the increase in viral spread rates in prisons and the quality of services provided^(17,25,29-30). It is possible to report that the prevalence of specific admission nursing consultation and the prevalence of SARS-CoV-2 infection were inversely proportional in the units investigated, evidencing that the diagnosis of COVID-19 was made without clinical criteria and care plans, and not by a trained professional capable of planning and evaluating interventions that meet the human needs of the affected PDL. It is worth emphasizing that the nursing team represents the largest workforce in prisons, and nurses are the professionals with the largest number of consultations⁽²³⁾.

In this sense, it is necessary to develop health technologies and standardize nursing consultation through the nursing process, enabling the direction of care and improvements in the quality of care and comprehensiveness of care^(23,24). Nursing consultations specifically for individuals deprived of liberty upon admission have proven to be the most effective measure, as they provide early diagnosis and interruption of the chain of viral transmission, as well as clinical management of symptomatic cases, and even complications and deaths^(21,23,24,28,30). Nursing consultations have an impact on the health of PDL and on all workers in the penitentiary system and the community surrounding prison units. Moreover, they support nurses in the nursing process and, consequently, in making more assertive interventions⁽²²⁻²⁴⁾.

Therefore, it is essential that nurses acquire competencies to implement the nursing process in a deliberate and systematic manner, in every socio-environmental context in which nursing care occurs. Furthermore, there should be ongoing education policies for nurses working in high-risk and unsanitary environments, such as prisons^(16,22).

It is believed that specific nursing admission consultation with serological testing, clinical and epidemiological evaluation, along with early detection and isolation can delay the transmission of SARS-CoV-2 in detention units^(17,29,30). Additionally, as overcrowding, lack of ventilation and poor hygiene are unfortunately a characteristic of the penitentiary

system, the consultation carried out by the nurse has the potential to minimize the impacts of isolation of positive cases, in particular overcrowding and health inequities^(17,25-27).

Moreover, the lack of nursing consultation with SARS-CoV-2 detection may lead to underreporting of cases, as well as underestimating the true magnitude of the disease within the prison system, impacting the distribution of resources for prophylactic measures, hiring of nurses, and care for infected individuals. In this context, a meta-analysis showed that approximately 30% of those infected with SARS-CoV-2 are asymptomatic, but they maintained a transmissibility of 75% compared to symptomatic individual⁽¹⁷⁾. These data are relevant for understanding the dynamics of virus transmission, and reinforce the importance of nursing consultations, regardless of whether they are symptomatic with respiratory symptoms, and of contact tracing for early identification of potential transmitters.

Despite the aforementioned evidence, the global prison system has not received adequate public attention during the pandemic. Many human rights organizations, including the International Human Rights Commission⁽¹⁹⁾, have been installed as authorities to adopt measures to protect the rights and health of PDL. However, there were also deficiencies in the scope of effective implementation, and it is important to highlight the broader and systematic approach of the actions to be taken to improve the architectural conditions and health-care network of prisons in Brazil and worldwide. During this period of international public health emergency, there was no increase in the number of nursing staff, which hindered nursing consultations and, in turn, the monitoring of infected PDL and their contacts, as well as care for other diseases.

It is hoped that the evidence presented here can be used to strengthen the argument with prison health managers about the need for trained nurses to face the challenges related to the transmission of respiratory viruses in prison facilities and serve as a reference for future analyses and the development of nursing care protocols.

Regarding sociodemographic characteristics, the predominance of young individuals, with low monthly income, mixed-race and single, corroborates national^(15,18,21) and international studies^(17,20,29,30), reaffirming a profile of economic and racial exclusion. Although all publications demonstrate that age is considered an important risk factor for severe forms of COVID-19 and, therefore, a priority population for preventive measures, there was no significant relevance among the age group of the individuals investigated who underwent a specific admission nursing consultation for SARS-CoV-2. This finding represents a public health problem since it contradicts all policies to combat the pandemic, since age is a predictor of vulnerability to infection by the new

coronavirus. It is worth noting that other risk behaviors for the severe form of COVID-19, such as smoking, use of other legal and illegal drugs, and chronic non-communicable diseases, are prevalent among PDL⁽¹⁷⁾.

Regarding contact with suspected and/or confirmed cases of COVID-19 in the prison unit, the data show that 35.6% had some type of contact, with a frequency of 50% in individuals who underwent a nursing consultation ($p=0.039$), corroborating the effectiveness of nursing in the care for PDL. This information reinforces once again how essential it is to have a nurse who carries out routine consultations when people enter the prison system, and that this is articulated with the National Policy for Comprehensive Health Care for Persons Deprived of Liberty.

Having contact with another individual deprived of liberty suspected and/or confirmed to have COVID-19 in the prison block yard was statistically significant in providing a specific nursing consultation for SARS-CoV-2 ($p=0.012$), possibly related to greater proximity to health professionals and local leaders. Studies indicate that individuals who circulate in prison units have greater interaction with the prison population, increasing the chances of having their health demands addressed⁽²⁶⁻²⁷⁾. Socialization areas are also common for establishing connections and greater access to health education among PDL^(21,26), enabling awareness of nursing consultations. Although it is not the focus of the study, during the observations that were noted in the field diary, the PDL desire to be seen by a nurse upon admission to prison units was unanimous.

The signs and symptoms of COVID-19 observed were similar to those mentioned by the major government health institutions^(13,14,21), the general population and other global studies with the prison population^(19,25,30), with the most frequent being: loss of taste (33.2%), loss of smell (32.8%), body aches or myalgia (28.8%), temperature $\geq 37.8^\circ\text{C}$ (28.4%) and dyspnea (22.1%). However, none of them showed significant relevance with the specific admission nursing consultation for SARS-CoV-2, most likely because it is a nonspecific symptomatology and common in other acute respiratory syndromes with high incidence in prison units, such as tuberculosis, influenza, and complications due to drug use, humidity and poor ventilation in cells. In this context, it is imperative that prison health services use diagnostic and clinical management protocols for respiratory diseases to minimize the spread of pathogens and clinical complications.

Only sore throat showed statistical significance ($p=0.010$) with specific nursing admission consultation for SARS-CoV-2 ($p=0.010$), which corroborates the interaction between respiratory pathogens, since sore throat is not a classic symptom

of tuberculosis and influenza. Although it is not possible to compare it at a statistical level with the scientific literature due to the lack of studies, authors have already demonstrated that sore throat is a very frequent symptom in viral infections^(7,27), indicating that the nursing consultation conducted in this study, though preliminary, was quite timely. It is believed that if there were a higher prevalence of consultations, nurses could direct their interventions to alleviate COVID-19 symptoms, establish care flows, and protocols for long-term COVID follow-up.

The study has some limitations. The prevalence of specific nursing consultation for SARS-CoV-2 was low, most likely due to the low number of nurses, and the data are self-reported, subject to memory bias and underestimation. Furthermore, the pandemic context may have influenced the PDL responses.

On the other hand, this research is relevant at the public health level, since it was the first study to relate specific nursing admission consultation and COVID-19 in PDL using primary data. In addition, it showed the occurrence rates of this infection, as well as the opportunity and relevance of the effective implementation of nursing consultation in the investigated group, highlighting the potential associated factors. Such findings, in addition to exposing vulnerabilities, may contribute to improving nursing care, creating follow-up flows and planning preventive measures for this and other infectious diseases with similar transmission.

■ CONCLUSION

The estimated prevalence of specific nursing admission consultations for SARS-CoV-2 among incarcerated individuals was low at 10.3% (95% CI: 7.0-14.06), ratifying the inadequacy of public authorities to manage the COVID-19 pandemic in prison units and a weakness for continuous and effective nursing care.

On the other hand, a high prevalence of SARS-CoV-2 infection at 21.3% (95% CI: 19.1-23.6) was estimated among the participants, demonstrating, therefore, that preventive actions are crucial to reduce viral dissemination, both among the PDL and the population involved in prisons environments. It is essential to emphasize the importance of nurses using standardized language in nursing consultations to promote better monitoring of PDL in care practice, being able to provide greater coverage for health promotion and prevention services, fostering changes and improving the quality of interventions.

Given these findings, the magnitude of the COVID-19 pandemic within prison walls becomes evident and reinforces

the importance of improving health care for PDL. It is also recommended that nursing consultations be emphatically included in the protocols for actions to cope with COVID-19 and other infectious diseases for all those who access and circulate through the units and services that are part of the deprivation of liberty facilities, since they may be sources of this and other diseases for the PDL. It is hoped that the discussion on this topic will continue, especially when it proposes to reflect on health in prison units in order to ensure this right to people deprived and restricted of liberty.

REFERENCES

- Lai C-C, Shih T-P, Ko W-C, Tang H-J, Hsueh P-R. Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) and coronavirus disease-2019 (COVID-19): the epidemic and the challenges. *Int J Antimicrob Agents*. 2020;55(3):105924. <https://doi.org/10.1016/j.ijantimicag.2020.105924>
- Castro JLD, Magnago C, Belisário SA, Ribeiro SDS, França T, et al. A gestão da pandemia de covid-19 e as suas repercussões para o gestor do SUS. *Saúde Soc*. 2024;32:e230491pt. <https://doi.org/10.1590/S0104-12902023230491pt>
- Walker PJ, Siddell SG, Lefkowitz EJ. Changes to virus taxonomy and to the International Code of Virus Classification and Nomenclature ratified by the International Committee on Taxonomy of Viruses (2021). *Arch. Virol*. 2021;166(9):2633–48. <https://doi.org/10.1007/s00705-019-04306-w>
- Shreeya T, Qidwai T, Mishra BN. Pathophysiology of SARS-CoV-2. In: Qidwai T. *Interaction of Coronavirus Disease 2019 with other Infectious and Systemic Diseases*. CRC Press; 2024. pp. 3–11.
- Yin K, Peluso MJ, Luo X, Thomas R, Shin MG, Neideman J, et al. Long COVID manifests with T cell dysregulation, inflammation and an uncoordinated adaptive immune response to SARS-CoV-2. *Nature Immunol*. 2024;1–8. <https://doi.org/10.1038/s41590-023-01724-6>
- Mehta OP, Bhandari P, Raut A, Kacimi SEO, Huy NT. Coronavirus disease (COVID-19): comprehensive review of clinical presentation. *Front Public Health*. 2021;8:582932. <https://doi.org/10.3389/fpubh.2020.582932>
- Oran DP, Topol EJ. The proportion of SARS-CoV-2 infections that are asymptomatic: a systematic review. *Ann Intern Med*. 2021;174(5):655–62. <https://doi.org/10.7326/M20-6976>
- van Lieshout Titan A, Klaassen F, Pellissari DM, Silva Júnior JNB, Alves K, Alves LC, et al. Cost-effectiveness and health impact of screening and treatment of Mycobacterium tuberculosis infection among formerly incarcerated individuals in Brazil. *medRxiv*. 2024:01. <https://doi.org/10.1101/2024.01.03.23300373>
- Battin MP, Smith CB, Francis LP, Jacobson JA. Toward Control of Infectious Disease: ethical challenges for a global effort. In: Boylan M, (eds). *International Public Health Policy and Ethics: the International Library of Bioethics*. Springer, Cham. 2023(106):207–231. https://doi.org/10.1007/978-3-031-39973-2_13
- Salvatore PP, Lee CC, Sleweon S, McCormick DW, Nicolae L, Knipe K, et al. Transmission potential of vaccinated and unvaccinated persons infected with the SARS-CoV-2 Delta variant in a federal prison, July—August 2021. *medRxiv*. 2021:2021;11. 12.1265796. <https://doi.org/10.1101/2021.11.12.1265796>
- Liu YE, LeBoa C, Rodriguez M, Sherif B, Trinidad C, Del Rosario M, et al. COVID-19. Preventive Measures in Northern California Jails: perceived deficiencies, barriers, and unintended harms. *Front Public Health*. 2022;10:854343. <https://doi.org/10.3389/fpubh.2022.854343>
- Fontes AW. Carceral community in the time of COVID-19: isolation, adaption, and predation. *Punishm Soc*. 2023;25(4):1062–79. <https://doi.org/10.1177/14624745221129425>
- Chaves TDV, Guedes TG, Perrelli JGA, Albuquerque NLSD, Manguera SDO, et al. COVID-19 in prisons: validity of a knowledge, attitude and practice survey. *Acta Paul Enferm*. 2024;37:eAPE002811. <https://doi.org/10.37689/acta-ape/2024A0000002811>
- Lind ML, Dorion M, Houde AJ, Lansing M, Lapidus S, Thomas R, et al. Evidence of leaky protection following COVID-19 vaccination and SARS-CoV-2 infection in an incarcerated population. *Nat Commun*. 2023;14(1):5055. <https://doi.org/10.1038/s41467-023-40750-8>
- Andrade SGA, Andrade FM, Silva A, Cardoso MRA, Ferraz GR, Barros ENC, et al. Overview of SARS-COV-2 infection at the Butantan Penitentiary Progression Center. *Rev Saúde Pública*. 2023;57:10s. <https://doi.org/10.11606/s1518-8787.2023057004717>
- Matos MA. New Coronavirus (SARS-CoV-2): advances to flatten the curve the prison population. *Rev Soc Bras Med Tropical*. 2020;53. <https://doi.org/10.1590/0037-8682-0219-2020>
- Kim H, Hughes E, Cavanagh A, Norris E, Gao A, Bondy SJ, et al. The health impacts of the COVID-19 pandemic on adults who experience imprisonment globally: a mixed methods systematic review. *PLoS One*. 2022;17(5):e0268866. <https://doi.org/10.1371/journal.pone.0268866>
- Crispim JD, Ramos AC, Berra TZ, Santos MS, Santos FL, Alves LS, et al. Impacto e tendência da COVID-19 no sistema penitenciário do Brasil: um estudo ecológico. *Ciê Saúde Coletiva*. 2021;25(26):169–78. <https://doi.org/10.1590/1413-81232020261.38442020>
- World Health Organization (WHO). Regional Office for Europe. Preparedness, prevention and control of COVID-19 in prisons and other places of detention: interim guidance [Internet]. 2021[cited 2024 Feb 24]. Available from: <https://iris.who.int/handle/10665/339830>
- Qureshi NS, Miller LG, Judge SP, Tran NDT, Henderson SO. Characterizing predictors of COVID-19 vaccine refusal in an urban southern California jail population. *Vaccine*. 2024;42(4):777–81. <https://doi.org/10.1016/j.vaccine.2024.01.017>
- Bianchi EN, Macedo LR, Maciel ELN, Sá RT, Silva Ald, Duque CLC, et al. SARS-CoV-2 prevalence and associated factors in prison inmates in Espírito Santo State, Brazil. *Cad Saúde Pública*. 2022;38(2):e00094721. <https://doi.org/10.1590/0102-311X00094721>
- Ministério da Saúde (BR). Secretaria de Atenção Primária à Saúde. Protocolo de manejo clínico do coronavírus (covid-19) na atenção primária à saúde: versão 9 [Internet]. 2020 [cited 2024 Jan 30]. 1–41 p. Available from: http://189.28.128.100/dab/docs/portaldab/documentos/20200504_ProtocoloManejo_ver09.pdf
- Fermo VC, Alves TF, Boell JEW, Tourinho FSV. A consulta de enfermagem no enfrentamento da COVID-19: vivências na atenção primária à saúde. *Rev Eletrôn Enferm*. 2021;23. <https://doi.org/10.5216/ree.v23.65893>
- Bortoli MC, Sanine PR, Araújo BCD, Oliveira CDF, Costa MIS, Tesser TR. Estratégias dos serviços de Atenção Primária durante a pandemia da COVID-19 no Brasil: uma revisão de escopo. *Ciê Saúde Coletiva*. 2023;28,3427–37. <https://doi.org/10.1590/1413-812320232812.06052023>

26. Novisky MA, Nowotny KM, Jackson DB, Testa A, Vaughn MG. Incarceration as a fundamental social cause of health inequalities: Jails, prisons and vulnerability to COVID-19. *Brit J Criminol*. 2021;61(6):1630-46. <https://doi.org/10.1093/bjc/azab023>
27. Barros RQF, Santos VA, Santos SG, Coutinho VM, Gomes ACC, et al. Eficácia da utilização de chatbots na triagem de sintomas de COVID-19: uma revisão integrativa. *Rev Multidisc Saúde*. 2023;4(3):812-7. <https://doi.org/10.51161/conais2023/20977>
28. Lins RM, Souza MA. A telemedicina como ferramenta de efetivação do direito humano fundamental à saúde para a população privada de liberdade na Bahia no contexto do Covid-19. *Rev Direito UNIFACS, Debate Virt[Internet]*. 2023[cited 2024 Feb 24];276. Available from: <https://revistas.unifacs.br/index.php/redu/article/view/8272>
29. Brosseau LM, Gold D, Materna B, McPhaul K, Rosen M, Seminario P, et al. Preventing aerosol-transmissible diseases in healthcare settings: the need for protective guidelines and standards—workshop report. *New Solutions*. 2024;33(4):236-47. <https://doi.org/10.1177/10482911231215498>
30. Levintow SN, DiRosa E, Carda-Auten J, Brown ME, Bradley-Bull S, Blue C, et al. SARS-CoV-2 Mitigation Strategies, Testing, and Cases at 254 Jails in the US Southeast, October 2020 to May 2021. *Am J Public Health*. 2022;112(11):1589-98. <https://doi.org/10.2105/ajph.2022.307012>
31. Mellon G, Rouquette A, Carton B, Cordonnier F, David E, Goutte B, et al. SARS-CoV-2 seroprevalence in the adult detainees of the Paris area in 2021: a multicenter cross-sectional study. *J Infect*. 2022;85(2):e40-e3. <https://doi.org/10.1016/j.jinf.2022.05.032>

■ **Acknowledgments:**

Call MCTIC/CNPq/FNDCT/MS/SCTIE/Decit No. 07/2020
- Research to combat COVID-19, its consequences and other severe acute respiratory syndromes.

■ **Authorship contribution:**

Conceptualization: Gláucia Oliveira Abreu Batista Meireles, Marcos André de Matos.
Funding acquisition: Marcos André de Matos.
Data curation: Gláucia Oliveira Abreu Batista Meireles, Ketllen Raiara Ferreira Santos Freires, Cácia Régia de Paula.
Formal analysis: Gláucia Oliveira Abreu Batista Meireles, Nara Rubia de Freitas.
Investigation: Gláucia Oliveira Abreu Batista Meireles, Ketllen Raiara Ferreira Santos Freires, Cácia Régia de Paula.
Methodology: Gláucia Oliveira Abreu Batista Meireles, Nara Rubia de Freitas.
Project administration: Márcia Alves Dias de Matos, Marcos André de Matos.
Visualization: Leticia Cortaza Ramírez, Águeda Maria Ruiz Zimmer Cavalcante, Marcos André de Matos.
Writing - original draft: Gláucia Oliveira Abreu Batista Meireles, Cácia Régia de Paula, Nara Rubia de Freitas, Marcos André de Matos.
Writing - review & editing: Águeda Maria Ruiz Zimmer Cavalcante, Márcia Alves Dias de Matos, Marcos André de Matos.

The authors declare that there is no conflict of interest.

■ **Corresponding author:**

Marcos André de Matos
E-mail: marcosmatos@ufg.br

Received: 02.20.2024

Approved: 09.05.2024

Associate editor:

Carlise Rigon Dalla Nora

Editor-in-chief:

João Lucas Campos de Oliveira