

Presenteeism and associated factors in a reference hospital in Covid-19: a cross-sectional study

Presenteísmo e fatores associados em hospital referência em Covid-19: um estudo transversal

Presentismo y factores asociados en un hospital de referencia en Covid-19: un examen transversal

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ABSTRACT

Objective: To identify the occurrence of presenteeism in healthcare professionals and its association with socio-occupational and health factors.

Method: Cross-sectional study, carried out from July to October 2022 with 152 healthcare professionals from a reference hospital for COVID-19. A semi-structured questionnaire was applied for socio-occupational and health characterization, and the Stanford Presenteeism Scale. Prevalence ratios were used to evaluate associations and statistical significance using Pearson's χ^2 ; binary logistic regression to investigate the impact of socio-occupational variables on presenteeism and linear regression for the scale domains.

Results: Female (65.8%), mean age 32 ± 8.59 years, no children (68.4%), nursing staff (55.3%), no previous (74.4%) or acquired (87.5%) comorbidities. Of the total, 85 (55.93%) professionals had low presenteeism. Previous comorbidity ($\chi^2(1) = 6.282; p = 0.012$, sick leave ($\chi^2(1) = 7.787; p = 0.005$, R2 Nagelkerke = 0.069) and medication use ($\chi^2(1) = 8.565; p = 0.003$, R2 Nagelkerke = 0.077) were predictors of low presenteeism.

Conclusion: There was no significant association between sociodemographic variables and presenteeism. Previous comorbidity, absence from work for health reasons and the use of medication were significant predictors of reduced concentration in work activities.

Descriptors: Presenteeism. Occupational health. COVID-19. Nursing

RESUMO

Objetivo: Identificar a ocorrência de presenteísmo em profissionais de saúde e a sua associação com fatores sociolaborais e de saúde.

Método: Estudo transversal, realizado de julho a outubro de 2022 com 152 profissionais de saúde de um hospital referência em COVID-19. Aplicou-se questionário semiestruturado para caracterização sociolaboral e de saúde, e a Stanford Presenteeism Scale. Utilizou-se razões de prevalência e qui-quadrado (χ^2) Pearson para avaliar associações; regressão logística binária para investigar o impacto das variáveis sociolaborais no presenteísmo e regressão linear para os domínios da escala.

Resultados: Sexo feminino (65,8%), média de $32 \pm 8,59$ anos, sem filhos (68,4%), da equipe de enfermagem (55,3%), sem comorbidades prévias (74,4%) ou adquiridas (87,5%). Do total, 85 (55,93%) profissionais apresentaram baixo presenteísmo. Comorbidade prévia ($\chi^2(1) = 6,282; p = 0,012$, afastamento por adoecimento ($\chi^2(1) = 7,787; p = 0,005$, R2 Nagelkerke = 0,069) e uso de medicamentos ($\chi^2(1) = 8,565; p = 0,003$, R2 Nagelkerke = 0,077) foram preditores para baixo presenteísmo.

Conclusão: Não houve associação significativa entre as variáveis sociodemográficas e presenteísmo. Comorbidade prévia, afastamento do trabalho por motivos de saúde e o uso de medicamentos foram fatores preditores significativos para a diminuição da concentração nas atividades laborais.

Descritores: Presenteísmo. Saúde Ocupacional. COVID-19. Enfermagem

RESUMEN

Objetivo: Identificar la ocurrencia de presentismo en profesionales de la salud y su asociación con factores sociolaborales y de salud.

Método: Estudio transversal, realizado de julio a octubre de 2022 con 152 profesionales de la salud de un hospital de referencia para COVID-19. Se aplicó un cuestionario semiestructurado de caracterización sociolaboral y de salud, y la Escala de Presentismo de Stanford. Se utilizaron razones de prevalencia para evaluar asociaciones y significación estadística mediante el χ^2 de Pearson; regresión logística binaria para investigar el impacto de variables sociolaborales sobre el presentismo y regresión lineal para las dominios de la escala.

Resultados: Mujer (65,8%), edad media $32 \pm 8,59$ años, sin hijos (68,4%), personal de enfermería (55,3%), sin comorbilidades previas (74,4%) ni adquiridas (87,5%). Del total, 85 (55,93%) profesionales presentaban bajo presentismo. La comorbilidad previa ($\chi^2(1) = 6,282; p = 0,012$, las bajas por enfermedad ($\chi^2(1) = 7,787; p = 0,005$, R2 Nagelkerke = 0,069) y el uso de medicación ($\chi^2(1) = 8,565; p = 0,003$, R2 Nagelkerke = 0,077) fueron predictores de bajo presentismo.

Conclusión: No hubo asociación significativa entre las variables sociodemográficas y el presentismo. La comorbilidad previa, la ausencia del trabajo por motivos de salud y el uso de medicación fueron predictores significativos de una menor concentración en las actividades laborales.

Descriptores: Presentismo. Salud ocupacional. COVID-19. Enfermería.

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■ INTRODUCTION

Presenteeism is an occupational and multifactorial phenomenon that has affected different areas of work, including health institutions. The term refers to the act of showing up for work despite physical or psychological impairment⁽¹⁾. Another definition of presenteeism refers to the act of being physically at work, but with reduced productivity due to health problems⁽²⁻³⁾. In this study, the general definition of presenteeism as attending work despite being sick was adopted.

Studies on occupational health have shown growing concern about presenteeism in the health sector. In a study carried out in Mexico, most professionals (67.5%) reported working while sick⁽⁴⁾. In Spain, a prevalence of presenteeism of 52.9% was observed among doctors, nurses and nursing assistants in hospital and extra-hospital services⁽⁵⁾. A multicenter study found presenteeism in 55% of Portuguese nurses, 36% in Brazil (36%) and 30% in Spain⁽⁶⁾. Corroborating these data, presenteeism was self-reported by 330 (43.5%) healthcare workers at a Brazilian hospital located in Rio Grande do Sul⁽⁷⁾.

The occurrence of presenteeism may have been exacerbated in the context of the coronavirus pandemic. The conditions generated by COVID-19 are sufficiently stressful to cause physical and psychological trauma in healthcare workers⁽⁸⁾. Research with 906 professionals in hospitals in Singapore and India identified the following as the main health problems: headache (31.9%), sore throat (33.6%), lethargy (26.6%), insomnia (21.0%), anxiety (15.7%), depression (10.6%) and stress (5.2%)⁽⁹⁾. A study carried out in Spain with 1,422 healthcare workers highlighted symptoms of post-traumatic stress (56.6%), anxiety (58.6%), depression (46%) and Burnout syndrome (41.1%)⁽¹⁰⁾. A study with 42 nurses conducted in Brazil identified symptoms such as stress and impaired interpersonal relationships due to the difficulty in performing tasks at work and interacting with people in the work environment⁽¹¹⁾. In Brasília, a study that evaluated resident doctors working during the pandemic revealed anxiety, inability to relax, fear, nervousness and impaired sleep quality⁽¹²⁾.

Presenteeism has been associated to declining productivity and higher institutional costs. A study conducted in healthcare institutions across six U.S. states analyzed the prevalence of 22 specific health conditions and their impact on work outcomes. The results indicated that presenteeism causes daily loss of productivity, generating additional annual

costs for companies in the healthcare sector⁽¹³⁾. Corroborating this data, research in five Chinese hospitals estimated an annual monetary loss of 4.38 billion and 2.88 billion based on reports of presenteeism from nurses and nursing managers⁽¹⁴⁾.

Physical or psychological fragility can impair the performance of healthcare professionals, compromising the quality of care and patient safety^(7,15). Studies have associated presenteeism with an increased risk of spreading respiratory diseases, including COVID-19, among professionals and patients, in addition to a reduction in the quality of care due to interpersonal conflicts, slow service delivery and decreased concentration and attention⁽¹⁶⁻¹⁹⁾.

In the present study, the researchers conducted a preliminary search in the MEDical Literature Analysis and Retrieval System Online (MEDLINE) via PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL) via EBSCO, and Cochrane Library databases and found few data on presenteeism in the tertiary sector, mainly related to the COVID-19 pandemic. Research on presenteeism focusing on associated factors and implications for the performance of healthcare professionals working in challenging work contexts can contribute to the analysis of the hospital situation, helping to plan actions aimed at improving or strengthening working conditions, maintaining the quality of care and increasing resilience during and after challenging epidemiological scenarios.

In view of the above, the following hypothesis was formulated: There is an association between presenteeism and socio-occupational and health factors of healthcare workers in a hospital specialized in the care of patients with COVID-19. Thus, the present study aimed to identify the occurrence of presenteeism in health professionals and its association with socio-occupational and health factors.

■ METHOD

This is an analytical, cross-sectional study that used the Checklist for observational studies Strengthening the Reporting of Observational Studies in Epidemiology (STROBE)⁽²⁰⁾.

The study was carried out in a reference hospital for treating COVID-19 cases, located in the city of Fortaleza, Ceará. The hospital was acquired by the Government of Ceará on November 26, 2020 to treat patients with COVID-19 and became part of the state public health network on a

permanent basis. The private unit was closed, but it was equipped and adapted by the State for the emergency caused by the global Covid-19 pandemic. It currently has 235 beds, 30 of which are Intensive Care Unit (ICU) beds for COVID-19 and 30 adult ICU clinical beds for other diseases.

The population consisted of 681 health professionals. Of these, 20 workers were away from work due to vacation, pregnancy leave or illness. The participating occupations were: doctors, nurses, pharmacists, physiotherapists, social workers, nutritionists, psychologists, nursing technicians, laboratory, radiology and pharmacy technicians or assistants. Sample calculation was performed using the G power software⁽²¹⁾ with a power of 95%, obtaining a non-probabilistic and intentional sample of 152 participants. Sample calculation was performed using the G power software⁽²¹⁾ for a power of 95%, and a non-probabilistic and intentional sample of 152 participants was obtained.

The inclusion criteria were having worked for at least one month in the sector and having a minimum workload of 20 hours per week. The following inclusion criteria were adopted: having worked for at least one month in the sector and with a minimum workload of 20 hours per week. Instruments with less than 50% of the responses completed were considered as exclusion criteria. During the collection period, 200 professionals were selected by convenience. Of these, 154 responded to the invitation, and two were excluded for not meeting the minimum weekly workload required.

Data were collected from July to October 2022. The data collection team consisting of four researchers received training on the instruments to be used, data collection strategies with health workers and guidance on data management. Then, a pilot test was carried out with ten professionals at the study hospital, who were excluded from the sample. At this stage, no adjustments to the collection instrument were suggested. The average time to complete the instrument was ten minutes. The exclusion of participants from the pilot test is justified to ensure that the results of the final sample reflect only the effective data collection.

Presenteeism was assessed using the Brazilian version of the Stanford Presenteeism Scale (SPS-6)⁽²⁴⁾. The SPS-6 is a scale widely used to assess health and productivity. It consists of six-item Likert scale ranging from one (strongly disagree) to five (strongly agree). The professional's ability to concentrate and perform work, despite having a health problem, is measured through two domains of presenteeism:

Completed work (CW), associated with physical causes, focusing on the result of the work (items 2, 5 and 6) and Avoided Distraction (AD), associated with psychological causes, focusing on the work process (items 1, 3 and 4). The scale analysis is performed for each domain and the sum of the total score. The Avoided Distraction domain has a reverse score when the total sum of the scale is performed⁽²⁴⁻²⁵⁾. The score obtained ranges from six to 30. Lower scores (from six to 18) indicate a low level of presenteeism, that is, a drop in performance in work activities. High scores (19-30) indicate a high level of presenteeism, which means a greater ability to concentrate and perform work despite the health problem. Low presenteeism is the presence of the outcome, that is, the worst situation, as the professional is unable to concentrate on their activities due to illness. Thus, the levels were categorized as low (≤ 18) and high (> 18) to assess the association between presenteeism and work variables.

The socio-occupational and health variables were: gender, age, children, marital status, employment contract divided into professionals who participated in the selection process for admission (employment contract with the company ruled by the CLT (Consolidated Labor Laws) and professionals hired by cooperatives, which are professional associations of a legal nature established to provide services to members (cooperatives), length of time working in the unit, professional occupation, number of jobs, work unit, weekly working hours, work shift, previous comorbidity, acquired comorbidity, absence due to illness, medication use, self-care activities for healthy mind and body, and intention to leave the professional field in the next 12 months.

The instrument was made available on paper or through the access link to fill out the instruments via Google form. The invitation card was made available via WhatsApp with a message asking professionals to help publicize the study and nominate other coworkers to contribute to the research.

Data collection was carried out in all hospital units. Professionals from the occupations included in the study were approached and invited to participate in the research seven days a week in the morning, afternoon and evening until the sample size was reached. The assistant researchers were instructed to search for professionals present in each sector based on the number of professionals in each occupation made available by the hospital. Furthermore, the invitation card was widely disseminated in WhatsApp groups after sector coordinators made it available. Checking

for inconsistencies in completing the instrument was assessed by the three researchers involved in the research. No incomplete instruments were identified.

Data analysis was performed using the Statistical Package for the Social Sciences (SPSS), version 22.0. Data normality was assessed using the Kolmogorov-Smirnov and Shapiro-Wilk tests. The assumption of homogeneity of variance was assessed using the Levene test.

Analysis of the SPS-6 scale results was carried out according to the authors' guidelines. To assess the association between presenteeism scores and sociodemographic, work and health variables, tests were performed depending on the type of response of the variable. To analyze the association of mean presenteeism scores with socio-occupational variables with two response options, Student's t-test was performed and for variables with more than two response options, one-way analysis of variance was performed. Prevalence ratios were used to assess the association and their statistical significance was tested using the Pearson chi-square (χ^2) method. Binary logistic regression analysis aimed to investigate to what extent socio-occupational variables impacted high and low presenteeism scores (dichotomous dependent variable) and linear regression was used for the variables completed work and avoided distraction. A p-value <0.05 was considered significant⁽²⁶⁾.

The research was approved by the ethics committee of the coordinating center and the participating hospital (n°5.417.065/no 5.520.134). Participation of the workers was accepted upon disclosure and clarifications about the research and the signing of the Free and Informed Consent Form (FICF). For participants who responded to the online instrument, the FICF was made available online. For those who completed it in person, the term was provided on paper, in two copies. The regulatory standards for research involving human beings were observed, in accordance with Resolution No. 466/2012 of the National Health Council, and Resolution 510/2016, which deals with the standards applicable to research in the Human and Social Sciences involving the use of data directly obtained from participants.

RESULTS

Of the 152 professionals, 100 (65.8%) were female, with an average age of 32 years ($SD=8.59$), without children 104

(68.4%) and single 101 (66.4%). Regarding labor data, 137 (90%) professionals under the CLT system were identified, 107 (70.4%) with more than one year of experience in the unit, 84 (55.3%) in the nursing occupation, 43 (28.3%) in the surgical center sector, 85 (55.9%) with a weekly workload of less than or equal to 36 hours and 47 (32.2%) working the night shift. When asked whether they intended to leave work in the next 12 months, 131 professionals (86.2%) reported having no such intention (Table 1).

Regarding the health profile of the professionals, it was found that 113 (74.3%) workers had no previous comorbidities and 133 (87.5%) did not acquire comorbidities after admission to the hospital. Among the professionals who had comorbidities, the prevalence of previous (56.41%) and acquired (52.6%) anxiety was observed. 57 (37.5%). Furthermore, 57 (37.5%) stated that they used medication continuously, with emphasis on the use of Anxiolytics/Antidepressants 36 (63.15%) and Supplements/Gastric Mucosal Protective Agents 11 (19.30%). Regarding absence from work due to physical or mental illness, 69 (45.4%) confirmed this need. Of these, more than half stated that they had not received support from the institution during their absence 49 (57.6%). Among the reasons for absence from work, the most frequent were COVID-19 infection, flu syndrome and other respiratory infections (52.17%) (Table 1). Regarding the practice of self-care activities for healthy mind and body, 112 (73.7%) professionals said they performed them (Table 1). The main activities were weight/crossfit/functional training 70 (62.5%), followed by walking/running 47 (41.96%).

Regarding the association of the scores of the SPS-6 domains and the socio-occupational variables, it was found that the variables previous comorbidity ($p=0.001$), comorbidity acquired at work ($p=0.008$), absence due to physical or mental illness ($p=0.001$) and medication use ($p=0.001$) were significantly associated with completed work. Absence due to illness and the use of medication were associated with the two domains, Completed work and Avoided distraction, as shown in Table 1.

The mean for the total SPS-6 was 19.98 ($SD=4.47$). For the Completed work domain the mean was 10.61 ($SD=3.17$) and for Avoided distraction it was 9.36 ($SD=3.42$). Item 2, "Despite my health problem, I managed to complete difficult tasks at work" had the highest mean of 3.67 ($SD=1.23$) (Table 2).

Table 1 – Association of socio-occupational and health variables with the domains Completed Work (CW) and Avoided Distraction (AD). Fortaleza, Ceará, Brazil, 2023.

Variables		SPS-6				
		n (%)	Completed work		Avoided distraction	
			Mean (SD*)	p-value [†]	Mean (SD*)	p-value [†]
Gender	female	100(65.8)	10.78(3.47)	0.368 [‡]	8.77(3.30)	0.491 [‡]
	male	52(34.2)	10.28(3.02)		8.37(3.68)	
Children	Yes	48(31.6)	10.70(2.65)	0.800 [‡]	8.73(3.21)	0.812 [‡]
	No	104(68.4)	10.56(3.41)		8.59(3.54)	
Marital status	married/ stable union	51(33.6)	11.29(3.22)	0.060 [§]	8.41(3.55)	0.576 [§]
	single/others	101(66.4)	10.26(3.12)		8.74(3.93)	
Employment contract	CLT	137(90.1)	10.3(3.10)	0.073 [‡]	8.72(3.37)	0.592 [‡]
	Cooperative member	15(9.9)	10.40(3.92)		7,80(3.93)	
Length of time working in the	< 1 year	45(29.6)	10.57(3.18)	0.932 [‡]	8.58(2.97)	0.901 [‡]
	>= 1 year	107(70.4)	10.62(3.19)		8.65(3.61)	
professional occupation	Physician	20(13.2)	10.60(3.41)	0.863 [§]	8.55(2.97)	0.729 [§]
	Nurse	33(21.7)	10.91(2.58)		8.82(3.25)	
	Pharmacist	4(2.6)	9.5(1.00)		10.00(2.00)	
	Physiotherapist	17(11.2)	11.29(3.48)		9.24(3.68)	
	Social worker	4(2.6)	9.75(5.12)		9.25(4.50)	

Table 1 – Cont.

Variables		SPS-6				
		n (%)	Completed work		Avoided distraction	
			Mean (SD*)	<i>p-value</i> [†]	Mean (SD*)	<i>p-value</i> [†]
professional occupation	Nutritionist	6(3.6)	10.66(3.01)	0.863 [§]	9.67(4.50)	0.729 [§]
	Psychologist	2(1.3)	10.50(6.36)		4.5(2.12)	
	Laboratory assistant	4(2.6)	9.00(-)		9(-)	
	Pharmacy technician	3(2.0)	9.00(-)		9.33(-)	
	Pharmacy assistant	6(3.9)	8.66(5.13)		7.50(4.18)	
	Nurse technician	51(33.6)	10.61(3.25)		8.37(3.39)	
No. of jobs	only 1	78(51.3)	10.47(3.24)	0.681 [§]	8.59(3.36)	0.298 [§]
	2 to 3	71(46.7)	10.70(3.15)		8.80(3.36)	
	More than 3	3(2.0)	12(3.00)		5.67(3.06)	
Work Unit	Supplies center	5(3.3)	9.2(1.64)	0.610 [§]	8.80(3.90)	0.736 [§]
	Surgical center	43(28.3)	10.51(3.14)		8.35(3.31)	
	Surgical ICU	2(1.3)	10.50(3.54)		10.50(0.71)	
	Adult ICU	36(23.7)	10.58(3.52)		9.11(3.65)	
	image	3(2.0)	12.33(3.06)		6.67(3.21)	
	laboratory	5(3.3)	9.80(1.79)		9.20(0.45)	

Table 1 – Cont.

Variables		SPS-6				
		n (%)	Completed work		Avoided distraction	
			Mean (SD*)	p-value [†]	Mean (SD*)	p-value [†]
Work Unit	Pharmacy	7(4.6)	8.14(2.27)	0.610 [§]	8.29(2.36)	0.736 [§]
	nutrition	4(2.6)	11.75(2.50)		8.50(4.73)	
	medical clinic	17(11.2)	11.47(3.10)		9.59(3.64)	
	surgical clinic	24(15.8)	11.16(2.99)		8.04(3.57)	
	psychology	2(1.3)	10.50(6.36)		4.50(2.12)	
	social assistance	4(2.6)	9.75(5.12)		9.25(4.50)	
Weekly workload	< 36h	85(55.9)	10.61(3.23)	0.770 [‡]	8.67(3.44)	0.594 [‡]
	> 36h	67(44.1)	10.66(3.15)		8.51(3.44)	
Work shift	morning	25(16.4)	10.56(3.12)	0.741 [§]	8.40(3.63)	0.952 [§]
	afternoon	23(15.1)	11.04(2.57)		8.43(3.01)	
	morning/ afternoon	45(29.6)	10.80(3.56)		8.69(3.55)	
	night	49(32.2)	10.14(3.35)		8.63(3.53)	
	day and night	10(6.6)	11.20(1.75)		9.40(3.27)	

Table 1 – Cont.

Variables		SPS-6				
		n (%)	Completed work		Avoided distraction	
			Mean (SD*)	<i>p-value</i> [†]	Mean (SD*)	<i>p-value</i> [†]
Previous comorbidity	yes	39(25.7)	12.05(2.65)	0.001 [‡]	9.05(4.01)	0.377 [‡]
	no	113(74.3)	10.11(3.21)		8.49(3.21)	
Comorbidity acquired at work	yes	19(12.5)	12.42(2.65)	0.008 [‡]	9.55(4.21)	0.073 [‡]
	no	133(87.5)	10.35(3.17)		8.44(3.27)	
Sick leave	yes	69(45.4)	11.79(2.69)	0.001 [‡]	9.26(3.61)	0.038 [‡]
	no	83(54.6)	9.62(3.27)		8.19(3.19)	
Medication use	yes	57(37.5)	12.03(2.85)	0.001 [‡]	9.37(3.57)	0.004 [‡]
	no	95(62.5)	9.75(3.07)		8.19(3.27)	
Self-care activities for healthy mind and body	yes	112(73.7)	10.62(3.30)	0.932 [‡]	9.30(3.03)	0.151 [‡]
	no	40(26.3)	10.57(2.84)		8.39(3.54)	
Intention to leave the job in the next 12 years	yes	21(13.8)	10.23(2.34)	0.563 [‡]	8.44(3.37)	0.090 [‡]
	no	131(86.2)	10.7(3.30)		8.44(3.37)	

Source: Research data, 2023

Notes: * Standard Deviation, † p-value, ‡ Student t test, § One-Way ANOVA

Table 2 – Mean and standard deviation of the domains of the Stanford Presenteeism Scale (SPS-6). Fortaleza, Ceará, Brazil, 2023.

	Mean (SD*)
SPS-6 total	19.98 (4.47)
Completed work (items 2,5,6)	10.61 (3.17)
2. Despite my health problem, I managed to complete difficult tasks at work.	3.67 (1.23)
5. At work I was able to focus on my goals despite my health problem.	3.45 (1.19)
6. Despite my health problem, I had the energy to finish all my work.	3.48 (1.20)
Avoided distraction (items 1,3,4)	9.36 (3.42)
1. Due to my health problem it was much more difficult to deal with stress at work.	3.03 (1.23)
3. Due to my health problem, I was unable to enjoy my work.	3.22 (1.28)
4. I feel unmotivated to finish some tasks at work, due to my health problem.	3.10 (1.31)

Source: Research data, 2023

Notes: *Standard Deviation

When presenteeism was categorized as ≤ 18 , low presenteeism, and > 18 , high presenteeism, 85 (55.93%) professionals had scores lower than 18, indicating that they were unable to maintain productivity due to health problems. Regarding the factors associated with presenteeism, it was found that the prevalence ratio of the variables previous comorbidity ($p=0.011$), absence due to physical or mental illness ($p=0.004$) and use of medication ($p=0.003$) showed statistically significant values (Table 3).

Binary regression was performed to verify whether previous comorbidity, absence due to physical or mental illness and medication use are predictors of low presenteeism and linear regression was performed to find out whether these three variables are capable of predicting each domain, completed work and avoided distraction. Previous comorbidity ($\chi^2(1)=6.282; p=0.012$, R^2 Nagelkerke=0.056), absence from work due to physical or mental illness ($\chi^2(1)=7.787; p=0.005$, R^2 Nagelkerke=0.069) and medication use ($\chi^2(1)=8.565; p=0.003$, R^2 Nagelkerke=0.077) were significant predictive factors for low presenteeism (Table 4).

Binary regression was performed to verify whether previous comorbidity, absence due to physical or mental illness

and medication use are predictors of low presenteeism and linear regression was performed to find out whether these three variables are capable of predicting each domain, completed work and avoided distraction.

Regarding the analysis by domains, absence from work due to physical or mental illness ($F(1, 150) = 4.361$, $p < 0.038$; adjusted $R^2 = 0.022$) and use of medication ($F(1, 150) = 4.314$, $p = 0.04$; adjusted $R^2 = 0.021$) were predictive factors for Avoided distraction. Regarding Completed work, the three variables previous comorbidity ($F(1, 150) = 11.503$, $p=0.001$; adjusted $R^2 = 0.065$), absence from work due to physical and mental illness ($F(1, 150) = 19.745$, $p < 0.001$; adjusted $R^2 = 0.110$) medication use ($F(1, 150) = 20.659$, $p < 0.001$; adjusted $R^2 = 0.115$) were predictors (Table 4). The variable that most strongly impacted the levels of completed work was medication use, explaining 11.5% of the outcome. Absence from work and comorbidity, in turn, were related to 11% and 6.5% of the construct variance, respectively. The other variables did not have a significant impact, as shown in Table 5.

Table 3 – Prevalence Ratio and 95% Confidence Interval (CI) of socio-occupational variables of professionals with low and high presenteeism. Fortaleza, Ceará, Brazil, 2023.

Variables		SPS-6						
		Low presenteeism ≤18		High presenteeism >18		p-value‡	PR	(CI 95%)
		n	(%)	n	(%)			
Gender	female	60	60.0	40	40	0.161	0.770	(0.314-1.213)
	male	25	48.1	27	51.9			
Children	yes	31	64.6	17	35.4	0.137	0.735	(0.292-1.199)
	no	54	51.9	50	48.1			
Marital status	married/stable relationship	26	51	25	49	0.385	1.177	(0.687-2.653)
	single/others	59	58,4	42	41,6			
Employment contract	CLT	77	56.2	60	43.8	0.833	0.937	(0.306-2.594)
	member of a cooperative	8	53.3	7	46.7			
Length of time working in the unit	less than a year	23	51.1	22	48.9	0.441	1.161	(0.655-2.652)
	more than a year	62	57.9	45	42.1			
Weekly workload	<36 h	49	57.6	36	42.4	0.629	0.915	(0.448-1.626)
	>36 h	36	53.7	31	46.3			
Previous comorbidity	yes	15	38.5	24	61.5	0.011*	1.614	(1.232-5.506)
	no	70	61.9	43	38.1			

Table 3 – Cont.

Variables		SPS-6						
		Low presenteeism ≤18		High presenteeism >18		p-value‡	PR	(CI 95%)
		n	(%)	n	(%)			
Comorbidity Acquired at work	yes	7	36.8	12	63.2	0.080	1.526	(0.900-6.569)
	no	78	58.6	55	41.4			
Leave due to physical or mental illness	yes	30	43.5	39	56.5	0.004*	1.676	(1.322-4.933)
	no	55	66.3	28	33.7			
Medication use	yes	23	40.4	23	59.6	0.002*	1.717	(1.411-5.466)
	no	62	65.3	33	34.7			
Self-care activities for healthy mind and body?	yes	59	52.7	53	47.3	0.169	1.351	(0.789-3.525)
	no	26	65	14	35			
Intention to leave their professional field in the next 12 months?	yes	14	66.7	7	33.3	0.273	0.727	(0.224-1.561)
	no	71	54.2	60	45.8			
Total		85	55.9		67	44.1		

Source: Research data, 2023.

Notes: ‡ Pearson's chi square. OR- Odds ratio (CI- 95% confidence interval).

Table 4 – Binary regression of the outcome low presenteeism with the predictor variables: previous comorbidity, absence from work due to physical or mental illness and use of medication. Fortaleza, Ceará, Brazil, 2023.

	B	Wald	p-value ‡	R ²	95% confidence interval
Low presenteeism ≤18					
Previous comorbidity	0.957	6.282	0.012	0.056	1.232–5.506
Absence from work due to physical or mental illness	0.937	7.787	0.005	0.069	1.322 – 4.933
Medication use	1.021	8.565	0.003	0.077	1.411– 5.466

Source: Research data, 2023.

Notes: p-value †p<0.05; Nagelkerke's R² of Binary Regression.

Table 5 – Linear regression of the variables completed work and avoided distraction with the predictor variables: previous comorbidity, absence from work due to physical or mental illness medication use. Fortaleza, Ceará, Brazil, 2023.

	Standardized coefficientsBeta	t	p-value ‡	R ²
Avoided distraction				
Previous comorbidity	0.377	-0.887	0.377	0.001
Absence from work due to physical or mental illness	-0.168	-2.088	0.038	0.022
Medication use	-0.167	-2.077	0.040	0.021
Completed work				
Previous comorbidity	0.267	3.392	0.001	0.065
Absence from work due to physical or mental illness	0.341	4.444	0.001	0.110
Medication use	0.348	4.545	0.001	0.115

Source: Research data, 2023.

Notes: t value; p-value †p<0.05; R² Linear regression.

DISCUSSION

The present study evaluated the association between presenteeism and socio-occupational and clinical factors of healthcare workers who carry out their activities in a hospital specialized in the care of patients with COVID-19. The prevalence of females and nursing professionals was similar to other studies. A research conducted by FIOCRUZ on the

profile of professionals working during the pandemic revealed a predominantly female workforce (77.6%). Most of the team was made up of nurses (58.8%), followed by doctors (22.6%), physiotherapists (5.7%), dentists (5.4%) and pharmacists (1.6%), with the other professions corresponding to 5.7%. The prevalent age range of frontline professionals was between 36-50 years (44%)⁽²⁷⁾. In addition to the occupations, other studies reveal a profile of married professionals, with children

and over 40 years of age^(5–7,18,27). Regarding the number of jobs, the result was similar to that of a recent study, in which 74.1% reported having only one employment relationship⁽²⁸⁾.

The results of this study revealed that more than half of the professionals were absent from work due to COVID contamination or flu-like symptoms and did not receive support from the institution. Also, more than 60% reported using anxiolytics and antidepressants. The results showed rates higher than the findings of the study carried out by the National School of Public Health (Ensp/Fiocruz) which reported that 25% of the workers were infected by COVID-19. Of these, 10.4% reported the insensitivity of managers regarding their professional needs⁽²⁷⁾. The COVID-19 Health care workers Study (HEROES) report showed that 14.7% to 22% of health care workers interviewed had symptoms that led to the suspicion of a depressive episode⁽²⁹⁾. Studies carried out in the context of the pandemic revealed the considerable occurrence of anxiety, depression, stress, fear and frustration among health professionals^(30–31).

A study carried out with the nursing team revealed that these professionals often resort to self-medication to feel able to work and as a strategy to prevent and minimize these actions, the following is suggested: stimulating self-knowledge; creating a positive work environment, facilitating communication channels, developing a positive organizational culture, identifying and documenting situations linked to presenteeism⁽³²⁾. Another study points out that managers of health institutions should implement psychological care in hospital institutions and access to online material about reducing anxiety, fear and despair in times of crisis⁽³³⁾.

The limited support provided by the institution during the absence of health professionals should be analyzed. Supervisor support influences employees' decision to attend work despite being sick or not feeling well, having a negative effect on presenteeism, because when employees are supported and valued by their supervisor, the probability of presenteeism occurring is smaller^(34–35). Relationships between managers and workers must be strengthened so that professionals feel welcomed by the institution to deal with health problems, reducing feelings of guilt or fear if they need to request leave from work.

Regarding presenteeism, the results shown in this study are similar to those of national and international studies that indicate scores slightly above 19 (19.98; SD=4.47). This means a greater ability to concentrate and get work done despite a health problem. Although the overall score pointed to a value above 18, when categorized, ≤ 18 , low presenteeism and > 18 , high presenteeism, 85 (55.9%) professionals had scores below 18, indicating the opposite, that these professionals were unable to maintain productivity due to

health problems. A study reported that presenteeism was significantly associated with loss of health and productivity in nurses over 32 years of age, with more than 10 years of experience and with children. Furthermore, researchers showed that the annual productivity loss from presenteeism per nurse was \$1,959 and for all nurses \$605,283⁽³⁶⁾. In Brazil, a study with 291 workers from the Central-West region found that 111 (38.14%) workers reported presenteeism in the last 30 days. Of this total, 62 (55.86%) maintained their work capacity, although affected by a health problem⁽²⁸⁾. Another study found that more than 40% of nursing professionals considered presenteeists by SPS6 were classified with a low score (between 6 and 18 points), indicating reduced work performance⁽³⁷⁾.

There was no significant association between socio-demographic variables and presenteeism. However, it was found that being away from work due to physical or mental illness and taking medication were significant predictors of low presenteeism, *i.e.*, the professional is unable to concentrate on their activities due to illness. A study conducted in a Brazilian public hospital identified a significant association between presenteeism and the variables children and sick leave in the previous year⁽²⁸⁾. Another study found significant associations between presenteeism and CLT employment contract, work shift, workplace, physical activity and presence of musculoskeletal symptoms. The authors found no significant associations between presenteeism and medication use^(28,37).

Regarding Avoided Distraction (AD), a domain associated with psychological causes, focusing on the work process, it was found that absence from work due to physical or mental illness and use of medication were also predictive factors. These results demonstrate how important a role these two variables play in the ability to avoid distractions and maintain focus during work activities. Presenteeism that negatively impacts performance and work productivity can be described as dysfunctional⁽³⁸⁾. In the United Kingdom, a seven-year cohort study of 89,925 healthcare workers found that physical or mental illness increases the likelihood of dysfunctional presenteeism by three times. However, according to the authors, in some cases the health effects of dysfunctional presenteeism are significantly reduced due to work characteristics, which suggests that it may also be possible to design work so that health problems have a reduced impact⁽³⁹⁾.

There was an association between the domain of completed work and the variables comorbidity, absence from work due to physical and mental illness and use of medication. Completed work is the professional's ability to complete work activity despite being ill. It is believed, however,

that professionals with some comorbidity and who use medication may perceive that these factors affect the work process and, therefore, prefer to be absent. A study with 129 nurses showed that professionals perceive that health problems, especially musculoskeletal problems, reduce their psychophysical ability to work⁽¹⁷⁾. A study carried out in an emergency hospital in the Central-West region of Brazil with 305 nursing workers revealed the occurrence of musculoskeletal symptoms and a 2.2% greater chance of these workers having presenteeism during the pandemic period. The study confirmed the relationship between greater productivity losses and the incidence of musculoskeletal symptoms with presenteeism events in the nursing team⁽⁴⁰⁾. From another perspective, almost all respondents said that working while sick also posed a risk to patient safety⁽³⁷⁾. The professionals are aware of the possible triggering factors and consequences of presenteeism.

A limitation of the study was the low adherence of some professional occupations, which resulted in low representativeness. Thus, a broader discussion and generalization of data to the population of health professionals was not possible. The study also has possible selection, information and confounding biases. The exclusion of 20 professionals, who were removed for various reasons, may have introduced a selection bias, excluding a specific group of professionals. Regarding information bias, the self-reported nature of the data by participants raises concerns about accuracy, especially in sensitive areas such as mental health. With regard to confounding bias, the likelihood of unmeasured factors impacting the results deserves mention. Further studies can provide a more in-depth analysis, exploring more variables, contributing to a more comprehensive approach to this bias.

■ CONCLUSION

There was no significant association between socio-demographic variables and presenteeism. However, it was found that absence from work due to physical or mental illness and medication use were significant predictors of the inability of health professionals to concentrate on their activities. Overall, presenteeism scores were slightly higher than 19, indicating that professionals were able to maintain focus and perform their work activities even when facing health problems during the COVID-19 period.

Previous comorbidity, absence from work due to physical or mental illness and medication use were significant predictors of low presenteeism, *i.e.*, reduced performance in work activities. These same variables were also found to be predictors of avoided distraction (AD), a domain associated with psychological causes, with a focus on the work process.

Regarding completed work, that is, the ability to complete work activities despite facing adverse health conditions, in addition to physical and mental illness and the use of medication, the presence of comorbidities was also identified as a predictive factor.

For future studies, a more detailed investigation into specific intervention strategies that can reduce presenteeism in healthcare professionals is suggested. Furthermore, exploring differences between professional occupations and assessing the long-term impact of such interventions are promising areas for subsequent research. Understanding the factors underlying presenteeism can also be explored, providing a stronger basis for developing preventive approaches.

Finally, the present study contributes significantly to the advancement of nursing science by filling gaps in knowledge about presenteeism. The study provides data that can inform management practices and interventions aimed at promoting occupational health. In the context of education, the results can be incorporated into training programs, raising awareness among health professionals and managers about the importance of addressing presenteeism. Moreover, the findings may have practical implications for management, with emphasis on organizational policies that promote a healthy work environment, which benefits both health professionals and the quality of patient care.

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