

Mortality of nursing professionals by Covid-19 in 2020: Brazil, United States, Spain and Italy

Mortalidade de profissionais de enfermagem pelo Covid-19 em 2020: Brasil, Estado Unidos, Espanha e Itália

Mortalidad de profesionales de enfermería por Covid-19 en 2020: Brasil, Estados Unidos, España e Italia

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REVISIA

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RESUMO

Objetivo: Analisar a mortalidade de profissionais de enfermagem (PE) pelo Covid-19 no Brasil (BRA), Estados Unidos (EUA), na Espanha (ESP) e na Itália (ITA) no primeiro semestre do ano de 2020. **Método:** Pesquisa exploratória, descritiva e de abordagem quantitativa. Os dados foram solicitados junto ao Conselho Federal de Enfermagem (COFEN) e disponibilizados pelo Conselho Internacional de Enfermeiras (CIE). Após a sua captação, os mesmos foram organizados no software Microsoft Excel 2016® pertencente ao pacote Microsoft Office 2016®, sendo implementada análise estatística descritiva. **Resultados:** Foi identificado o universo de 677 registros de óbito de PE até o dia 19/05/2020. O BRA registrou a maior preponderância contabilizando 20,2% (n=137) dos casos, seguindo pelos EUA com 13,4% (n=91), ESP com 7,4% (n=50) e ITA com 5,8% (n=39). **Considerações finais:** Foi verificado aumento na frequência de registros de casos de mortalidade de PE por Covid-19 no recorte geográfico e histórico analisados.

Descritores: Mortalidade; Profissionais de Enfermagem; Covid-19; Epidemiologia.

ABSTRACT

Objective: To analyze the mortality of nursing professionals (PE) by Covid-19 in Brazil (BRA), United States (USA), Spain (SPA) and Italy (ITA) in the first half of 2020. **Method:** Exploratory, descriptive and quantitative research. The data were requested from the Federal Nursing Council (COFEN) and made available by the International Nurses Council (CIE). After being collected, they were organized in the Microsoft Excel 2016® software belonging to the Microsoft Office 2016® package, and a descriptive statistical analysis was implemented. **Results:** The universe of 677 death records of PE was identified until 05/19/2020. Brazil registered the largest preponderance accounting for 20.2% (n=137) of the cases, followed by the USA with 13.4% (n=91), Spain with 7.4% (n=50) and Italy with 5.8% (n=39). **Final considerations:** There was an increase in the frequency of registration of cases of PE mortality by Covid-19 in the analyzed geographical and historical context.

Descriptors: Mortality; Nursing professionals; Covid-19; Epidemiology.

RESUMEN

Objetivo: analizar la mortalidad de los profesionales de enfermería (EP) por Covid-19 en Brasil (BRA), Estados Unidos (EEUU), España (ESP) e Italia (ITA) en el primer semestre de 2020. **Método:** investigación exploratoria, descriptiva y cuantitativa. Los datos fueron solicitados al Consejo Federal de Enfermería (COFEN) y puestos a disposición por el Consejo Internacional de Enfermeras (CIE). Después de ser recopilados, se organizaron en el software Microsoft Excel 2016® que pertenece al paquete Microsoft Office 2016®, y se implementó un análisis estadístico descriptivo. **Resultados:** El universo de 677 registros de defunciones de EP se identificó hasta el 19/05/2020. Brasil registró la mayor preponderancia con el 20,2% (n=137) de los casos, seguido de los EE.UU. Con el 13,4% (n=91), España con el 7,4% (n=50) e Italia con 5,8% (n=39). **Consideraciones finales:** Hubo un aumento en la frecuencia de registro de casos de mortalidad por EP por parte de Covid-19 en el contexto geográfico e histórico analizado.

Descritores: Mortalidad; Profesionales de enfermería; COVID-19; Epidemiología.

Introduction

Today, June 20, 2020, 8,693,006 cases of Covid-19 were recorded worldwide, according to estimates proposed by the Coronavirus Resource Center at Johns Hopkins University, with the United States (USA) having the highest prevalence with 25, 6% (n = 2,222,600) and Brazil (BRA) ranked second with 11.9% (n = 1,032,913).¹ Regarding the number of deaths, it was possible to verify the universe of 460,594 cases worldwide, with the USA reaching the highest preponderance with 25.9% (n = 119,131) and BRA the second place with (n = 48,954).¹

The term "corona" comes from the Latin and means crown, since these viruses are found in the form of circles, being visualized by electron microscopy in the form of small drops, as a kind of crown.² The expression Covid-19 can be understood due to the combination of the acronym "CO" which has a corona meaning, "VI" which is used to designate viruses and the letter "D" which refers to the disease in question.³ The Covid virus -19 was genetically identified and sequenced⁴, being classified as zoonotic⁵ where its RNA is of the order Nidovirales and the family Coronaviridae, presenting a wide distribution among humans, other mammals and birds, possibly being humans and bats its hosts.⁶

This viral family, which normally causes infectious respiratory-like processes, was isolated as far as is known in 1937 and, described in more detail in 1965.⁵ For other researchers, there is a correlation with other coronaviruses circulating among bats, including the one identified with the SARS coronavirus, and it is possible to consider that their most likely natural reservoir are these flying mammals⁷ and, the intermediate host, is probably another type of mammal that has not yet has been identified.⁸

In other publications, it is speculated that scaly-type anteaters, which inhabit tropical areas of Asia and Africa, called Pangolin, are its intermediate host.⁶ The most known types of coronavirus to date are alpha coronavirus HCoV-229E, alpha coronavirus HCoV-NL63, beta coronavirus HCoV-OC43, beta coronavirus HCoV-HKU1, SARS-CoV, which is the cause of the syndrome acute respiratory distress or SARS, MERS-CoV, which is the cause of Middle East respiratory syndrome or MERS and SARSCoV-2.⁹

A new coronavirus was described at the end of 2019, after cases were registered in China, the one that caused the disease is called Covid-19.⁹ Possibly, this virus went unnoticed for several weeks, at the beginning of what is understood as a seasonal flu season, in this city that has about 11 million inhabitants, until the alert was issued to increase serious cases of pneumonia, when it was It is possible to isolate and identify Covid-19 in a large number of patients.¹⁰

In December of 2019, in the city of Wuhan, Hubei province in China, an outbreak of pneumonia was identified which is believed to have been caused by a new strain of coronavirus, rapidly spreading to approximately twenty-four (24) other nations.⁶ For some researchers, this disease may be related to the phenomenon of people exposure, in a specific market that traded among its products, seafood, live animals, among others.¹¹

On December 29, 2019, four (04) people with pneumonia were admitted to a hospital based in Wuhan, and it was found that they worked in the wholesale seafood market in Huanan.¹² On January 1, 2020, said market was

closed as a way to fight the disease in question¹³ and, on January 30, 2020, the outbreak was declared by the World Health Organization (WHO), as a Public Health Emergency of International Importance (ESPII), after confirmation of thousands of cases and hundreds of deaths related to the new coronavirus Covid-19, as a result of reports by Chinese health authorities.¹⁴

In an important study that evaluated data from 1099 Chinese patients with confirmed Covid-19, it was possible to identify that 41.9% were female and with an average age of 47 years, needed treatment in the intensive care unit (ICU) with the use of mechanical ventilation.¹⁵ Regarding the identification of the most common symptoms, lymphopenia was verified in 83.2% of the patients, 43.8% had fever on admission and 88.7% during hospitalization, 67.8% had a cough and 3.8 % had diarrhea, the average incubation period being 4 days.¹⁵

Despite being used as a form of experimental treatments to combat Covid-19, drugs classified as antiretroviral drugs, such as Lopinavir® (C₃₇H₄₈N₄O₅), Ritonavir® (C₃₇H₄₈N₆O₅S₂), Remdesivir® (C₂₇H₃₅N₆O₈P), in addition to interferon® , it can be maintained that there is no specific treatment.¹⁰ The direct, indirect impacts, complexity and magnitude related to Covid-19, classify it as an international public health problem, pointing out that its spread is in a growth far superior to the capacity of effective response of the health services of several nations.¹⁶⁻¹⁷

The best hypotheses for the development of an experimental vaccine to combat Covi-19 point to at least one year.¹⁰ In this sense, this research aimed to analyze the frequency of deaths of nursing professionals in four (04) nations, being them , Brazil (BRA), the United States (USA), Spain (ESP) and Italy (ITA), in the first half of 2020.

Method

This is an exploratory, descriptive and quantitative approach. For the acquisition of data necessary for the construction of this study, data were formally requested from the Federal Council of Nursing (COFEN) and they were made available by the International Council of Nurses - CIE (International Council of Nurses - ICN), and they have been updated until the day 05/18/2020.

The CIE is constituted as a federation of more than one hundred and thirty (130) national associations of nurses representing more than twenty (20) million nursing professionals worldwide¹⁸, having as its mission to represent the said category throughout the world. world, promoting the advancement of the profession, promoting the well-being of nursing professionals and defending health in all its policies.¹⁹

The data made available by the CIE were acquired at BRA from the Federal Nursing Council - COFEN [<http://www.cofen.gov.br/>], in the USA at National Nurses United - NNU [<https://www.nationalnursesunited.org/>], at ESP at the Consejo General de Colegios Oficiales de Enfermería de España - CGE [<https://www.consejogeneralenfermeria.org/>] and at ITA with Federazione Nazionale degli Ordini delle Professioni Infermieristiche - FNOPI [<https://www.fnopi.it/>].

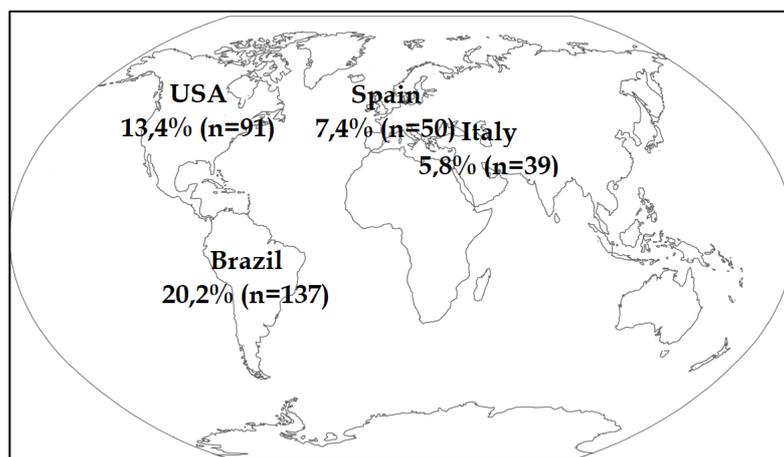
In order to facilitate better understanding in relation to the nations under analysis, the website “Countries” of the Brazilian Institute of Geography and Statistics - IBGE was used, acquiring information about them, by accessing their electronic address [<https://paises.ibge.gov.br/#/>], as it aggregates data from various official sources on different nations of the world.²⁰ It is divided into six (06) themes, namely the economy, social indicators, the environment, the population, networks and health, and the data are presented succinctly and directly, allowing the comparison between the indicators from several countries.²⁰

After the acquisition of the necessary data for the construction of the present research, they were organized with Microsoft Excel 2016® software, belonging to the Microsoft Office 2016® for Windows® package, and a descriptive statistical analysis was implemented, with the percentage calculations (%). The results were presented by means of one (01) figure and two (02) explanatory tables. The authors declare no conflicts of interest.

Results

In the process of organizing and analyzing the data, 677 PE mortality records were identified worldwide, in the geographical and historical framework established, as shown in figure 1. In the four (04) nations elected for analysis in this research, a constitution was made the universe of 317 PE death records, with the greatest preponderance of them, accounting for 20.2% (n = 137) identified in BRA.

Figure 1 - Distribution of mortality of nursing professionals by nation, in the first half of 2020 (n = 677):



Source: CIE, 2020. * Updated until 18/05/2020.

Table 1 contains information on the four (04) nations elected for analysis, the same being, territorial extension in square kilometers (Km²), the total population, the gross domestic product (GDP) expressed in trillions dollars (US \$) and the human development index (HDI). An interesting and noteworthy fact is that the two (02) nations that have the greatest preponderance with regard to the case records of Covid-19 and also deaths of PE, are constituted while those with high demographic density, if ranking among the ten (10) largest in the world, that is, BRA and the USA.

Table 1 - Presentation of the nations under analysis by territorial extension, population, Gross Domestic Product (GDP) and Human Development Index (HDI):

Nation	Extension(Km ²)	Population (hab.)	GDP (Trillions de US\$)	HDI
USA	9.833.517	326.766.748*	US\$ 20.580.223*	0.920*
BRA	8.510.295,914	211.049.519**	US\$ 1.868.613*	0.761*
ESP	505.370	46.736.782**	US\$ 1.419.735*	0.893*
ITA	301.340	60.550.092**	US\$ 2.084.882*	0.883*

Source: IBGE, 2020. * = 2018 ; ** = 2019.

Table 2 shows the distribution of PE mortality records internationally, with the highest prevalence being identified in BRA with 20.2% (n = 137). In the second, third and fourth places, the USA was identified with 13.4% (n = 91), ESP with 7.4% (n = 50) and ITA with 5.8% (n = 39), respectively.

Table 2 - Distribution of mortality of nursing professionals by nations, 2020 (n=677):

Nations	f	%
Brazil	137	20.2
USA	91	13.4
Spain	50	7.4
Italy	39	5.8
Others	360	53.2
Total	677	100

Source: CIE, 2020. * Updated until 05/18/2020.

Other nations had more than 360 records of PE deaths, due to the impacts generated directly and indirectly by Covid-19, and it is not possible to identify the nation in which these professionals died.

Discussion

In relation to BRA currently, the largest preponderance of death records of nursing professionals by Covid-19, there are several factors that support this phenomenon, such as, for example, the fact that this nation has the largest group of workers who develop health services, as they have the greatest direct contact in care care for patients, in all hospital sectors and in primary health care (ABS), as well as for the frequency and performance of different types of procedures implemented.²¹ As for other researchers, it is argued that they constitute themselves as the category of the health area that is most susceptible, when compared to the others, in relation to them also being victimized at work accidents, due to the greater number of exposures involving material (s) biological (s).²²

As a predisposing factor for the vulnerability of the nursing team, it is also proposed in the scientific literature, the reduced adherence by these professionals, with regard to the difficulty of adapting to the use of personal protective equipment (PPE), the low knowledge in relation to the occupational risks, in addition to issues related to demotivation processes, labor overload,

inadequacy of equipment, absence or inaccessibility of equipment for use, or even due to inadequate physical structure.²³ On the other hand, another point that makes PE vulnerable in the fight against Covid-19, is related to their permanence, for a longer time, in integral and uninterrupted care to the patient, together with the various environments of the health sector.²⁴

The work process of the nursing category is also made available at night, weekends and holidays, as a form of care and assistance to meet the numerous demands of users of health services, also constituting itself as a generating factor for numerous weaknesses of this powerful workforce.²⁵ For other researchers, all of these phenomena can be constituted as mechanisms that potentiate the reduction of quality of life (QOL), the anticipation or the triggering of illnesses, deterioration of health, potentiating the process of organic aging.²⁶⁻²⁷

An important initiative developed in May of 2020 by the Federal Nursing Council (COFEN), was the implementation of the "Crisis Management Committee - COVID - 19" and also the "Nursing Observatory".²⁸ The Crisis Management Committee within the scope of the Cofen System / Regional Nursing Councils (CORENs), was created with the aim of managing issues inherent to crises related to the Covid-19 pandemic, officially declared by WHO, following up daily situations related to the pandemic, aiming at lowering recommendations and emergency action strategies, considering the forecasts of the Ministry of Health and health authorities.²⁸

Regarding the high frequency of mortality by Covid-19 in the USA, it is pointed out that it has the highest number of cases worldwide, and on 01/21/20 the Center for Disease Control and Prevention (CDC) registered the first case in Washington - DC, from China (CHN).²⁹ For some researchers, the first known male-to-male transmission of SARS-CoV-2 in the U.S. was identified in late January 2020, where an infected traveler and a 60-year-old woman returned from Wuhan and later this patient became symptomatic, transmitted the infection of her husband with whom she had prolonged and unprotected contact.³⁰

At the beginning of February, there was an outbreak in the city of Seattle-USA, located on the west coast, followed by an expansion in March to cities on the east coast of the country and, therefore, if in the beginning of February the cases were classified as imported. CHN or IITA and, at the end of the month, the so-called community or indigenous transmission.²⁹ In April 2020, the CDC released a report, and it is presented that between February 12 and April 9, 2020 there were 315,531 cases of Covid-19, of which 19% (n = 9,282) were from health professionals.³¹

Among health professionals who had a death record, the average age was 42 years, seventy-three percent (73%) were female and 38% had at least one underlying health condition.³¹ For some researchers, the incidence of cases reported to the Chinese nation has drastically reduced, due to the implementation of strict social distance measures, however, coronavirus 2 of the pandemic severe acute respiratory syndrome (SARS-CoV-2), is now generating transmission sustained in many countries, including the USA.³²

Another vehicle that currently develops the service for the registration of deaths of health professionals globally is Medcape, through the website "In Memoriam", and on 04/28/2020, the number of deaths in the USA registered by this database totaled 71, of which 62% (n = 44) were registered nurses and

35.2% (n = 25) were doctors.³³ Regrettably, the death records of health professionals continue to increase and also, the reports are still in progress, with the largest preponderances recorded were in the USA, ITA, UK (GBR), BRA, ESP and France (FRA).³³

With regard to PE mortality by Covid-19 in ESP, some researchers claim to be one of the nations that record the highest preponderance of reported cases in Europe, in addition to having accounted for more than 15,000 of all cases of positive test people, be from health professionals.³⁴ The impact of Covid-19 with ESP is such that, while strategies adopted by the government, Royal Decree number 7/2020 was instituted, in the implementation of financial measures, aiming at supporting the health system, in addition to protecting companies, the amount of 2,800 million euros is earmarked for all regional health services, in addition to the creation of a new fund of 1,000 million euros, intended for priority interventions in the health sector.³⁵

In 03/17/2020, a universe of more than 11,000 cases and 491 deaths were already added, and in response to these phenomena, Royal Decree number 463/2020 was instituted by the Spanish government, declaring a state of national emergency in the period of 15 days, starting March 15.³⁶ As a result of Covid-19, wide transmissibility was verified in several Spanish regions, mainly in Madrid, Basque Country and Catalonia, requiring measures to be reinforced for its combat and control.³⁷

In Madrid, La Rioja and Vitória, meetings with more than 1,000 people were banned, and among the measures taken to mitigate this public health problem, the closing of schools, universities, libraries, centers for elderly, sports facilities, social distance, in addition to having restricted access and permanence in some of the areas considered most affected.³⁷ Many reports suggest that health professionals are at points of exhaustion, this reality being related to the scarcity of existing staff, low wages, among many other conditions.³⁸

For the World Health Organization (WHO), a crisis with these proportions and related impacts puts all the components of a health system under pressure, due to the increased number of new cases in a country.³⁹ On the other hand, the scientific literature also points to the impact of Covid-19 in nursing homes and long-term care facilities for the elderly (LTCF), with this phenomenon being verified with dramatic and tragic effects.⁴⁰ In this sense, more than 10,000 elderly people in ESP died due to this pandemic, while thousands of others are isolated in these institutions, which are the best estimates, because, for some specialists and scholars, the real amount is much worse.⁴⁰

In relation to Covid-19 at ITA on 02/20/2020, a 30-year-old patient was admitted to the intensive care unit (ICU) of Hospital Codogno based in Lodi, Lombardy, and the exam was performed and obtained positive result for a new coronavirus, severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). In this context, the test result was immediately communicated to the Lombardy Health System and, within the next 24 hours, the number of positive cases reported increased to 36 patients.⁴¹

In the Veneto region bordering Lombardy, another group of patients with Covid-19 was identified, having recorded a rapid increase in people who also contracted this disease, at that time, after CHN, ITA had the second largest contingent of people with this diagnosis, when compared to other nations, in addition to a very high mortality rate.⁴² For other researchers, in the first half of

February 2020, only 3 cases of people with Covid-19 were identified at ITA, all of whom recently traveled to CHN and thus, the government of Lombardy on 21/02/2020, organized an emergency task force as a way of responding to the identified outbreak.⁴³

On 08/03/2020, extraordinary measures were implemented to limit viral transmission by the Italian government, mainly aiming to restrict its transmissibility in the Lombardy region, minimizing the possibility of people who were not infected to come into contact with others who were infected. encountered with this disease.⁴⁴ The impact of Covid-19 on the Italian nation is such that some researchers point out that health professionals have been working day and night to combat and control it, however, about 20% (n = 350) of them have been infected and some have died.⁴⁴

The Italy Group for Evidence Medicine (Italy Group for Evidence Medicine) recorded that approximately 8.3% of the total cases of Covid-19 accounted for in Italy, were identified in health professionals, this being double what was reported in CHN (3.8%).⁴⁵ As methodologies to combat and control the aforementioned public health problem, measures such as the provision of more than 5,000 ventilators to treat victims, in addition to the hiring of more than 20,000 doctors and nurses are being organized through legislation implemented by the Italian government.⁴⁴

The issue of PE mortality by Covid-19, constitutes itself as a complex phenomenon, related to several factors experienced daily by this category, as pointed out by several researchers. Thus, it is verified that the number of health professionals, and by extension, PE from all over the world who died due to Covid-19, is not effectively known, because the records received are often incomplete, fragmented and also, in extreme cases, hidden.⁴⁶

Nursing professionals are those, when compared to other components of the health team, who have the highest levels of occupational stress and also suffering, due to the stress suffered in their daily work.⁴⁷ In an important research carried out in England on the issue of occupational health, it is proposed that nurses are identified as professionals who are in a group at high risk for the development of suicide, and it is found that they register approximately 23% higher than the national average.⁴⁸

Due to the PE and health use PPE to reduce the risk of exposure, in addition to having scientific knowledge and skills in handling this equipment, the percentage of death when compared to the general population is lower.⁴⁷⁻⁴⁹ In short, the number of NP and health that can still be infected remains high, and nurses are particularly vulnerable to the acquisition of this disease and also to mortality, due to the large number of contact hours that they remain with. infected and non-infected patients, compared to doctors and anesthetists, are also at high risk in activities such as intubation.⁴⁹

Conclusion

There was an increase in the number of PE death records by Covid-19 in the analyzed geographical and historical profile. The greater preponderance of records identified in BRA is related to several factors, such as the increasing number of professionals in this category, constituting itself as the largest when compared to those of other professions in this sector, both in hospital institutions and with those members ABS.

The reduced availability of PPE, the greater exposure to biological materials, the greater proximity to patients contaminated and not contaminated by Covid-19, in addition to performing more invasive procedures and techniques, make PE more vulnerable to the contamination of this powerful disease and many others. Issues related to work overload, demotivation, inadequacy, absence or inaccessibility of equipment for use in daily work, or even the inadequacy of the institutional physical structure for the exercise of professional activities, are pointed out by several researchers as vulnerability factors of NP.

Comprehensive and uninterrupted patient care, developed even at night, on weekends and holidays, generates overloads to NP, allowing the generation of illnesses of various orders, especially those of an emotional-psychological scope, which can allow the emergence of suicidal ideation or self-extermination. The scientific literature already correlates the direct and indirect impacts of Covid-19 with the emotional-psychological health of PE and CHN health, pointing to the need to implement various strategies and mechanisms for their care, support and defense at a global level.

Despite having some limitations, the present research provides contributions in terms of better understanding and understanding regarding PE mortality in combating and controlling Covid-19. It was also verified the underreporting of case records related to the investigated phenomenon, being necessary the development of other studies and researches that will allow a better understanding of this noisy situation, which strongly weakens the professional category of nursing, the health sector and the whole society.

It is up to the supervisory bodies of professional practice, educational and cultural representation policies of the nursing category, bodies and policies, in addition to the entire civil society, to increase their performance in the sense of developing mechanisms and methods of evaluation and protection for NP and health, as a way of truly mitigating this unfortunate phenomenon, frequently identified today due to Covid-19. Policies to reduce work hours, real and proportional to the availability of PPE and EPC, dimensioning patients in wards and sectors that constitute health institutions in all their types and configurations, if represented and used with measures to reduce the vulnerability of workers. PE in the course of carrying out their daily work activities.

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