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CLINICAL-EPIDEMIOLOGICAL PROFILE OF CHILDREN AND ADOLESCENTS WITH DIAGNOSIS FOR COVID-19 AND INFLUENZA IN PERNAMBUCO

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ABSTRACT

Among the pandemics that devastated humanity in the last 100 years, those caused by influenza viruses, belonging to the Orthomyxoviridae family, stand out. In December 2019, incity ofWuhan, China, a new coronavirus has been identifiedbelonging to the subfamily Coronaviridae. The etiological agent causing the new pandemic characterized as COVID-19 is the Sars-CoV-2 betacoronavirus, which infect animals and humans in a wide variety.This is a descriptive cross-sectional epidemiological study. The population used includes all children (<1 year to 9 years old) and adolescents (10 to 19 years old) according to the World Health Organization (WHO), as reported and/or confirmed cases of COVID-19 and influenza A, registered in the National System of Notifiable Diseases (SINAN) from January 2020 to December 2021. The State of Pernambuco began to issue epidemiological bulletins regarding the panorama of COVID-19 from March 2020, where in same monthA case of a 10-year-old boy was recorded, with a history of travel to the United States, being the first confirmed case, of the new coronavirus in the child age group.New proposals for studies that address detailed descriptions of the epidemiological surveillance processes of Covid-19 and influenza A directed at the clinical and epidemiological profile of both diseases are necessary to expand the technical-scientific support for this profile.Thus, the relevance of investments in research that focus on the previous health, social and economic conditions of children and adolescents with COVID-19 and influenza A in different contexts is reinforced, so that measures to control, prevent and combat the disease are established. That devastates the state, Brazil and the societies of the world, that can contribute to the public health process regarding the fight against Covid-19 and influenza A.

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INTRODUCTION

Among the pandemics that devastated humanity in the last 100 years, those caused by influenza viruses, belonging to the Orthomyxoviridae family, stand out.[1]. Where, the genera of viruses involved in respiratory conditions and those belonging to genera A, B and C[2]. The only ones responsible and with the greatest potential to cause greater mortality are A and B; however, only genus A has pandemic potential[1]. In December 2019, incity ofWuhan, China, a new coronavirus has been identifiedbelonging to the subfamily Coronaviridae[1.3]. The etiological agent causing the new pandemic characterized as COVID-19 is the Sars-CoV-2 betacoronavirus, which infects animals and humans in a wide variety[4]. Its transmissibility occurs through the air or through personal contact with secretions of contaminated people, being considered the virus with the highest andrapid spread throughout the world with profound global impact, and with increasing rates of hospitalization and morbidity and mortality withabsolute number much higher than the combined epidemics caused by SARS-CoV and MERS-CoV[5]. The COVID-19 pandemic, declared by the World Health Organization (WHO) in March 2020, has made many countries adopt unprecedented public health measures to try to contain its spread as it is a new pathogen, with replication and transmissibility between large proportion human beings[6].According to the Ministry of Health, the main symptoms caused by COVID-19may be similar to those caused by other respiratory viruses, such as fever, cough, dyspnea, anosmia (loss of smell), geusia (loss of taste), among others, and may progress to more severe cases such as viral pneumonia and severe acute respiratory syndrome (SARS). However, factors associated with comorbidities such as diabetes, hypertension, cardiovascular and renal diseases in infected individuals are relevant to the incidence of severe cases of the disease.[7].

According to the United Nations (UN), the total number of cases of COVID-19 contamination has already exceededthe mark of 260 million people, leading to death of 6.1 million people, and with the discovery of a new variant, the omicron, the number of cases of contamination has been increasing in all countries[8]. The highest rates of morbidity and mortality from COVID-19 are concentrated in the adult population and, especially, the elderly[9]. Children and adolescents are less affected by severe cases of the disease, without the need for hospitalization and with reduced mortality rates when compared to other age groups.[10]. However, in a study developed in China, published in mid-2020, described the epidemiological characteristics of COVID-19 in 2143 patients under 18 years of age, with 731 confirmed cases and 1412 suspected cases.[11]. Of these cases, only 5.9% progressed to clinical conditions considered serious and critical.[12]. According to the Ministry of Health,Since the beginning of the Covid-19 pandemic, with the protection measures (use of masks), hygiene and social distance determined by the pandemic from 2020 onwards, there has been an important reduction in the number of cases of influenza in children and adolescents registered in the World, in Brazil and Pernambuco. This context changed in the last quarter of 2021 when, after social isolation measures, probably due to increased circulation and interaction between people, other respiratory viruses such as influenza returned to circulate linked to the emergence of a new strain of the influenza A (H3N2) virus.)[4.5]. In Pernambuco, 1,578 cases of the H3N2 subtype have been registered in the general population since the beginning of 2021, among these, two children died.[6]. Among the peculiarities presented by COVID-19, it is observed that cases of contamination of children and adolescents are reported less frequently compared to adults, and preliminary evidence indicated that, unlike influenza A (H3N2), children do not fully play a role. a critical role of transmissibility, even though most of the time the condition presented by it is asymptomatic. However, regarding the role of children and adolescents in the transmission of SARS-Cov-2 in relation to adults, there is little evidence.[8.9]. The impact and extent of influenza casesA (H3N2) during a pandemic such as COVID-19 and (previously unknown), with consequences of high magnitude such as the high number of deaths, economic instability and health crises, makes the present study extremely relevant[10.11]. Detailed knowledge of the epidemiological profile of pandemic diseases certainly contributes to pertinent and assertive management in health sector collapses such as these[1]. Thus, this study aims to describe the clinical and epidemiological profileof COVID-19 and influenza casesA (H3N2)in individuals aged 0 to 19 yearsin the state of Pernambuco, with regard to risk factors, transmissibility, sex and age group with more incidents, symptoms and complications, lethality and mortality, in order to assist in the understanding of diseases and their effects, so that more effective solutions can be sought to reduce morbidity and mortality.

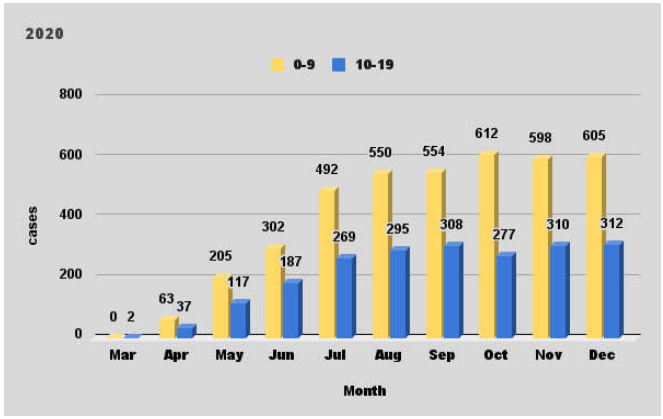
METHODS

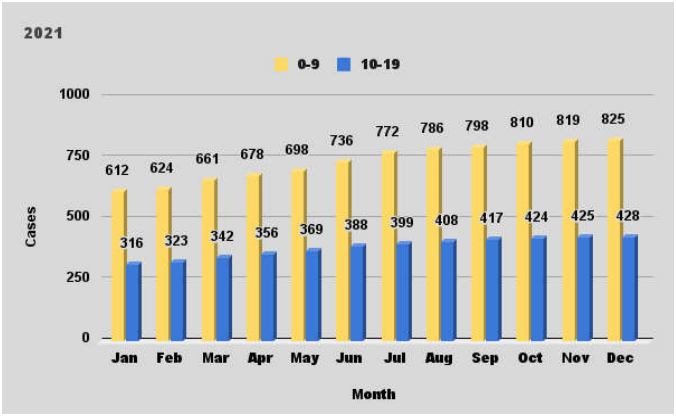
This is a descriptive cross-sectional epidemiological study. The population used includes all children (<1 year to 9 years old) and adolescents (10 to 19 years old) according to the World Health Organization (WHO), as reported and/or confirmed cases of COVID-19 and influenza A, registered in the National System of Notifiable Diseases (SINAN) from January 2020 to December 2021. The secondary data used regarding the occurrence of cases of COVID-19 and influenza A were collected from the information records of the State Secretary of Health of Pernambuco (http://portal.saude.pe.gov.br/boletim-epidemiologico-covid-19) and on the website (http://www.saude.rs.gov.br), in the database of the National Epidemiological Surveillance System of the Ministry of Health and Department of Informatics of the SUS (DATASUS; http:// www.datasus.gov.br). The tool used to analyze the epidemiological situation in 2021 wasEpi Info™ 2002 and thePearson's $\chi 2$ test, Fisher's exact test. According to the specific literature, a period of two years was selected, the period in which the pandemic began in the country, due to the availability of data and because they represent the most recent epidemiological situation. For the construction of the graphs, that is, the range of expected values for each month, the average of the number of cases notified, monthly, for each month was calculated. The patient identifier was used for the deterministic linkage between the notification records and the test results records. The normality of data distribution was assessed using the Kolmogorov-Smirnov test. For confirmed cases of COVID-19 in children and adolescents, the probability of hospitalization was estimated by Poisson regression with robust variance according to the variables sex, age, death and presence of comorbidities, and the results were expressed in prevalence ratios (PR) and its 95% confidence interval (95%CI). In all analyses, $p<0.05$ was a reference to indicate statistical significance. In addition, the entire study was performed using the SPSS version 25 software resources. Death and presence of comorbidities, the results being expressed in prevalence ratios (PR) and their 95% confidence interval (95%CI). In all analyses, $p<0.05$ was a reference to indicate statistical significance. In addition, the entire study was performed using the SPSS version 25 software resources. Death and presence of comorbidities, the results being expressed in prevalence ratios (PR) and their 95% confidence interval (95%CI). In all analyses, $p<0.05$ was a reference to indicate statistical significance. In addition, the entire study was performed using the SPSS version 25 software resources.

RESULTS AND DISCUSSION

In this study, we evaluated the profile of children and adolescents affected by COVID-19 and influenza, showing that this population was less affected and had a more favorable evolution compared to adults. According to the literature, this outcome can be justified through isolation, where school classes were suspended, reducing contact between people. in the study ofZheng F.et.al, 2019, brings thatChildren and adolescents with COVID-19 are often asymptomatic, or have a mild case of influenza, without seeking medical assistance and, therefore, are not diagnosed. As well as having a protective immune system against COVID-19, in addition to having fewer comorbidities in relation to adults and the elderly. The State of Pernambuco began to issue epidemiological bulletins regarding the COVID-19 panorama from March 2020, where in the

same monthA case of a 10-year-old boy was recorded, with a history of travel to the United States, being the first confirmed case, of the new coronavirus in the child age group. In addition to him, the State also confirmed the first case in a teenager: a 16-year-old girl with a history of passing through the United States. While in December of the same year, the state had confirmed 222,166 cases and of these 605 cases of COVID-19 were in the age group of 0-9 years and 312 cases of 10-19 years. In addition, in the same period, 139 cases were reported for influenza A, in the age group 0-9 years, while for the age group 10-19 years there were no confirmed cases for influenza in the same period. In 2021, 824 cases were confirmed for COVID-19 in the age group of 0-9 years and 427 for adolescents between 10-19 years, seen in the following chart.





Source: National System of Notifiable Diseases (SINAN)/Department of Epidemiological Surveillance/State Secretary of Health of Pernambuco.

Graphic 1. Number of reported COVID-19 cases according to year and month of notification. Pernambuco, Brazil, 2021

Corroborating our study, in the study of Safadi MAPet. Al, 2020 described that about 1 to 5% of cases diagnosed with COVID-19 occurred in the pediatric age group. In line, the Korean Center for Disease Control and Prevention reported that as of mid-March 2020, where 6.3% of all confirmed COVID-19 cases were patients under the age of 20. In Pernambuco, 51.57% were confirmed in patients, aged between 0 and 19 years old, with a diagnosis of COVID-19, a higher percentage than that found in other studies. It is also accepted that the underdiagnosis in this age group makes it difficult to estimate the real epidemiological panorama of the disease in the state. Already in the study ofSun P et al, 2020 reports thatinfluenza A, as it is often mild, most do not need medical attention and, therefore, do not diagnose the disease, which is reserved only for cases with more exuberant and/or severe symptoms.

The findings regarding symptoms for COVID-19 were fever even if referred with (95%), chills with (0.2%), sore throat with (5%), headache with (3%), cough with (70%), coryza with (80%), olfactory disorders with (0.6%), taste disorders with (3%), in addition to nasal obstruction. As for the description of influenza A symptoms in the databases, they were recorded as flu symptoms, leaving the study confused, since currently patients with flu conditions without results of exams confirming the disease can be characterized as a suspect for COVID-19. Regarding the diagnostic method used to confirm cases in Pernambuco in the general population, as well as in children and adolescents, immunological tests for COVID-19 and influenza were:

In this study, a hospitalization rate (1.8%) was observed among children and adolescents with confirmed diagnoses for COVID-19 and among these (18.1%) used the Intensive Care Unit (ICU), of which, (0 .16%) had comorbidities. According to the Mortality System (SIM), throughout the covid-19 pandemic to date, 122 (9.7%) among children and adolescents in the state of Pernambuco have died, as well as influenza A (H3N2).), were (0.7) corresponding to a case of a child with a clotting disorder due to complications of the disease.in the study ofSun P heevaluated 2,143 patients under 19 years of age with suspected or confirmed COVID-19, obtained a mean age of seven years, with no difference between sexes, and the most severe cases occurred in newborn and preschool children. In another cross-sectional, case series type study, which was carried out with a total of 289 confirmed and suspected COVID-19 patients, 08 of them tested positive for type A influenza, all of which were negative for COVID-19, admitted to a hospital in reference in the capital of the state of Pernambuco. The estimated mortality in another study that evaluated 72,314 Chinese patients was 0% in the age group from 0 to 9 years and 0.18% between 10 to 19 years. In our study, the mortality found in patients aged 0 to 19 years was 9.7% for COVID-19 and 0.3% for influenza in Pernambuco, however,

Study limitations: The results of this study must also be considered by limiting criteria. There is a significant daily increase in scientific publications on the subject, and the studies analyzed correspond to those available until December 2021, when data collection took place. In addition, the studies analyzed prioritized characteristics relevant to the clinical course of COVID-19 and influenza. Therefore, the scientific evidence obtained in this study shows gaps in knowledge regarding the epidemiological profile, notably regarding color/race, sex, schooling, Municipalities and socioeconomic conditions of children and adolescents with COVID-19 and influenza, given that in government databases does not reliably provide the clinical epidemiological profile of the current scenario of the course of diseases in children and adolescents, for focusing on the adult and elderly population. Also noteworthy is the impossibility of appreciating the behavior of the disease in children and adolescents from Pernambuco, data that were identified, given the low number of studies carried out in the state. However, despite these limitations, this study has the potential to encourage and support investigations that, in the future, take into account the social, economic and family contours in the spread and worsening of COVID-19, as well as influenza in children and adolescents from different Brazilian states, developed and under development.

Contributions to the area of nursing and health: Nursing is at the forefront in combating the global pandemic of the new SAR-Cov-2 and is considered a key member as a precursor to controlling and preventing the spread of this new infectious disease. The performance of these professionals is essential for health care, especially at this time, at all levels of care, with attributions of disseminating education for prevention, as well as infection control, in addition to direct care to infected individuals. The emergence of the new disease COVID-19 and the new strain of influenza A (H3N2) poses important challenges to nursing professionals regarding the management and prognosis of infected people, especially children and adolescents. Thus, health professionals, especially nurses, working in direct assistance to these patients and families,

CONCLUSION

A relevant volume of publication was found that addresses the epidemiological aspect centered on COVID-19, with broad guidance related to curative practices of a low volume published on the epidemiology of COVID-19 and Influenza A with a leading role in the history of the clinical-epidemiological profile. of the disease. In

summary, in the course of the findings of the character repositoriespublic the results appreciated in this study offered data to trace the epidemiological profile of children and adolescents with COVID-19 and influenza in the state of Pernambuco.New proposals for studies that address detailed descriptions of the epidemiological surveillance processes of Covid-19 and influenza A directed at the clinical and epidemiological profile of both diseases are necessary to expand the technical-scientific support for this profile. The main limitations corresponding to the absence of certain information, such as race/color, education and/or socioeconomic conditions of the participants, are not addressed by the government data sources analyzed in this study, and the absence of national studies on the topic of interest. Thus, the relevance of investments in research that focus on the previous health, social and economic conditions of children and adolescents with COVID-19 and influenza A in different contexts is reinforced, so that measures to control, prevent and combat the disease are established. That devastates the state, Brazil and the societies of the world, that can contribute to the public health process regarding the fight against Covid-19 and influenza A.

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