



Contents lists available at ScienceDirect

Journal of Pediatric Nursing

journal homepage: www.pediatricnursing.org

“Between the cross and the sword”: Brazilian children face an influenza epidemic while still dealing with the COVID-19 pandemic



Brazil is still facing the consequences of the COVID-19 pandemic with 6800 people infected per day (Brasil, 2021). According to data from the Brazilian Ministry of Health, at least 04 people a day, under the age of 19, have died from COVID-19 since the beginning of the pandemic. In 2020, the country reported 373 deaths of people under one year of age from Severe Acute Respiratory Syndrome (SARS) caused by COVID-19, 189 in the range between 1 and 5 years old and 641 people aged 6 to 19 years old, totaling 1203 and reaching one of the highest pediatric mortality rates by COVID-19 worldwide (CNN, 2021a).

However, an influenza epidemic seems to emerge in the country, which is a reason for concern, especially in the pediatric population not yet vaccinated against SARS-CoV-2 and already facing a new microbiological threat. According to Pan-American Health Organization (PAHO) (2021) bulletin, the Influenza activity remained at inter-seasonal levels; however, influenza A(H3N2) detections continue to increase in Brazil, Chile, Paraguay, and Uruguay. Most of the activity and rising trend of A(H3N2) detections are recorded in Brazil (Pan-American Health Organization (PAHO), 2021). A bulletin issued by the Oswaldo Cruz Foundation (Fiocruz) reported significant presence of the influenza A virus, both in children and in the adult population, among cases of SARS in the city of Rio de Janeiro, referring to epidemiological weeks 47 and 48 (from 21 to 28 November and from 28 to 4 December) (CNN, 2021b). According to data from the health department of the Brazilian state of São Paulo, until December 15, there were 42% of positive tests for influenza in children and adolescents, a number 4 times higher compared to the entire previous month (10%) (O Povo, 2021). In the last seven days, 1170 hospitalizations for SARS were computed in the city of São Paulo alone, an increase of 47.5% compared to the previous seven days, when there were 793 new cases. In the state of Rio de Janeiro at least 20,000 cases were confirmed, an increase of 82% when compared to the thirty days of the previous month. In the state of Bahia, 80 deaths were counted. Furthermore, health systems of at least ten Brazilian states are already under pressure and emergencies across the country are beginning to burden with cases of SARS (Correio Braziliense, 2021). Estimates by the World Health Organization show that every year at least 650,000 people die from the direct and indirect effects of the influenza virus in the world (Crépey et al., 2020). In fact, a Brazilian study comparing lethality rates between the COVID-19 pandemic and the influenza epidemic in 2009, showed higher rates for influenza (4%) especially in children and adults with comorbidities (Candido et al., 2020). This situation is worrying, as vaccination campaigns were hampered by the COVID-19 pandemic. In parallel, the Brazilian health system is still recovering from the overload of the last two years (Horton, 2020).

Among the impacts of the influenza epidemic during the COVID-19 pandemic on Brazilian children and adolescents, we can mention (i) the worsening mental health of children/adolescents with increased stress, irritation, anger, anxiety, depression, post stress disorder - traumatic inherent to natural disasters/pandemics that can be amplified and that impair growth and development, as well as increase the chance of evolution to substance abuse, chronic non-communicable diseases and other mental disorders (de Araújo et al., 2021); (ii) the burden on health systems with a reduction in supplies (eg, vaccines, medicines, gauze, syringes) and on health professionals who face exhausting journeys, fatigue and mental illnesses; (iii) the decrease in skilled labor, with losses of pediatricians, immunologists, nurses, nursing technicians, health agents during the pandemic; (iv) the economic crisis caused by economic downturns, especially in underdeveloped countries; and (v) the political crises aggravated by the interference of local governments, with social instability, hunger, misery and impoverishment, which are already evident in Brazil (Candido & Gonçalves, 2021; Horton, 2020).

These impacts are even more severe in socially vulnerable children, which add to the factors mentioned in the previous paragraph, the parents' refusal to vaccinate against contagious infectious diseases such as COVID-19 and influenza. Kempe et al. (2020), when analyzing 2716 parents about the decision to vaccinate their children for influenza or not, demonstrated that 25.8% were hesitant and 12% were strongly against vaccination. According to the authors, a lower educational level (defined as the absence of a bachelor's degree) and low family income were more strongly associated with this posture. A North American study that evaluated 1425 parents showed that those black, low-income and dependent on public insurance had greater hesitation about vaccinating their children compared to their white peers, with higher income and dependent on private insurance (Alfieri et al., 2021). A study carried out with 119 adults showed that, especially among African-Americans, there were higher levels of distrust with the pharmaceutical companies, and therefore with the vaccines and governments that promote them. Participants justified their distrust on the premise that these institutions are driven solely and exclusively by profit (Jamison et al., 2019).

Therefore, as a way to protect Brazilian children and adolescents, health promotion measures are needed, with a focus on vaccination campaigns for COVID-19 and influenza; encouraging the use of masks and alcohol-based sanitizer; social protection measures for parents/family to ensure access to quality food, education and other health measures; and, finally, medium and long-term structural plans for vaccination, monitoring, control, and health surveillance for possible infectious agents with the capacity to generate epidemics or/and pandemics.

Funding

Center for Studies and Research in Public Health - NUEPESC - Centro Universitário Paraíso, Juazeiro do Norte, Ceará, Brazil.

Declaration of Competing Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Acknowledgments

National Confederation of Medical Cooperatives - UNIMED Juazeiro do Norte - Ceará, Brazil.

References

- Alfieri, N. L., Kusma, J. D., Heard-Garris, N., Davis, M. M., Golbeck, E., Barrera, L., & Macy, M. L. (2021). Parental COVID-19 vaccine hesitancy for children: Vulnerability in an urban hotspot. *BMC Public Health*, 21(1662). <https://doi.org/10.1186/s12889-021-11725-5>.
- de Araújo, L. A., Veloso, C. F., de Campos Souza, M., de Azevedo, J. M. C., & Tarro, G. (2021). The potential impact of the COVID-19 pandemic on child growth and development: A systematic review. *The Journal of Pediatrics*, 97(4), 369–377. <https://doi.org/10.1016/j.jpeds.2020.08.008>.
- Brasil (2021). COVID-19 no Brasil. https://infoms.saude.gov.br/extensions/covid-19_html/covid-19_html.html.
- Candido, E. L., Costa, M. S., Moreira, M. R. C., & Júnior, J. G. (2020). Influenza A/H1N1 and COVID-19 in Brazil: Epidemiological impacts and differences. *Rev. Epidemiol. Controle Infecç*, 10(3), 1–11. <https://doi.org/10.17058/reci.v10i3.15413>.
- Candido, E. L., & Gonçalves, J. J. (2021). COVID-19 syndemic, government, and impact on mental health: A Brazilian reality. *Frontiers in Psychiatry*, 12, Article 671449. <https://doi.org/10.3389/fpsy.2021.671449>.
- CNN (2021a). COVID-19 matou quatro crianças e adolescentes por dia no Brasil. <https://www.cnnbrasil.com.br/saude/covid-19-matou-quatro-criancas-e-adolescentes-por-dia-no-brasil/>.
- CNN (2021b). Estado do Rio de Janeiro soma 56 mortes causadas pelo vírus Influenza A, 2021. <https://www.cnnbrasil.com.br/saude/estado-do-rio-de-janeiro-soma-56-mortes-causadas-pela-influenza-a/>.
- Correio Braziliense (2021). Com surto de gripe, sobe número de internações por sintomas respiratórios. <https://www.correio braziliense.com.br/brasil/2021/12/4972575-com-surto-de-gripe-sobe-numero-de-internacoes-por-sintomas-respiratorios.html>.
- Crépey, P., Boiron, L., Araújo, R. R., Lopez, J. G., Petitjean, A., & de Albuquerque Luna, E. J. (2020). Impact of quadrivalent influenza vaccines in Brazil: A cost-effectiveness analysis using an influenza transmission model. *BMC Public Health*, 20, 1374. <https://doi.org/10.1186/s12889-020-09409-7>.
- Horton, R. (2020). Offline: COVID-19 and the NHS: "A national scandal". *Lancet*, 395(10229), 1022. [https://doi.org/10.1016/S0140-6736\(20\)30727-3](https://doi.org/10.1016/S0140-6736(20)30727-3).
- Jamison, A. M., Quinn, S. C., & Freimuth, V. S. (2019). "You don't trust a government vaccine": Narratives of institutional trust and influenza vaccination among African American and white adults. *Social Science & Medicine*, 221, 87–94. <https://doi.org/10.1016/j.socscimed.2018.12.020>.
- Kempe, A., Saville, A. W., Albertin, C., Zimet, G., Breck, A., Helmkamp, L., ... Szilagyi, P. G. (2020). Parental hesitancy about routine childhood and influenza vaccinations: A national survey. *Pediatrics*, 146(1), Article e20193852. <https://doi.org/10.1542/peds.2019-3852>.
- Pan-American Health Organization (PAHO) (2021). Influenza situation report. <https://www.paho.org/en/influenza-situation-report>.
- Povo, O. (2021). Gripe em SP: hospital infantil relata 42% de testes positivos para Influenza A em crianças só em dezembro 2021. <https://revistacrescer.globo.com/Crianças/Saude/noticia/2021/12/gripe-em-sp-hospital-infantil-relata-42-de-testes-positivos-para-influenza-em-criancas-so-em-dezembro.html>.

Aloisio Antônio Gomes de Matos Brasil
Auditor in Health Management. Physician and researcher at the National Confederation of Medical Cooperatives - UNIMED, Juazeiro do Norte, Ceará, Brazil
Correspondence author.
E-mail address: neuropsiquiatra@bol.com.br

Erika Galvão de Oliveira
Nursing Course at the Doctor Leão Sampaio University Center - UNILEAO, Juazeiro do Norte, Ceará, Brazil

Luís Fernando Reis Macedo
Nursing Course at the Regional University of Cariri - URCA, Crato, Ceará, Brazil

Dayse Cristina Rodrigues Pereira Luz
Post-Doctoral Student in Health Sciences at the ABC Medical School – FMABC, Santo André, São Paulo, Brazil

Estelita Lima Cândido
Researcher for the Masters in Health Sciences, Faculty of Medicine, Federal University of Cariri – UFCA, Barbalha, Ceará, Brazil

Italo Wanderson de Moura Gabriel
Physician and Researcher at the Faculty of Medicine of Juazeiro do Norte – FMJ/IDOMED, Juazeiro do Norte, Ceará, Brazil

Jucier Gonçalves Júnior
Physician and Researcher at the Department of Internal Medicine, Division of Rheumatology, University of São Paulo (USP), São Paulo, SP, Brazil

Liromaria Maria de Amorim
Department of Education, Universidade Regional do Cariri, Crato, Ceara, Brazil

Modesto Leite Rolim Neto
Productivity Scholarship of the Juazeiro do Norte School of Medicine from Juazeiro do Norte - FMJ/Estacio, Juazeiro do Norte, Ceará, Brazil

Maria Misrelma Moura Bessa
Center for Studies and Research in Public Health - NUEPESC - Centro Universitário Paraíso, Juazeiro do Norte, Ceará, Brazil