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REVIEW ARTICLE

Breastfeeding and the COVID-19 pandemic

Lactancia materna y la pandemia de COVID-19

Aleitamento materno e a pandemia da COVID-19

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Abstract

The aim of this study was to understand the impacts of SARS-CoV-2 on breastfeeding. This is an integrative literature review carried out in the online databases LILACS, BDENF and MEDLINE. The descriptors used in the search were "Breastfeeding" AND "Coronavirus" AND "Postpartum period". The search covered the period January 2021. Studies in Portuguese and English were selected. Eleven articles met the eligibility criteria and composed the reading of the summary of this review. According to the studies, there are several factors that impact breastfeeding in the face of SARS-CoV-2, we can mention that the insecurity of lactating women is the biggest factor that prevents the maintenance of breastfeeding and the uncertainties that surround it throughout the pandemic. It is concluded that breastfeeding of mothers with COVID-19 is safe, following the appropriate infection control measures to prevent mother-infant contagion, and to reduce the impact of early weaning, we must carry out educational activities in the prenatal period and carry out training with the multidisciplinary team to encourage exclusive breastfeeding in view of its benefits.

Descriptors: Breastfeeding; Coronavirus; Postpartum; Human Milk; Lactation; Passive Immunization.

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Resumén

El objetivo de este estudio fue comprender los impactos del SARS-CoV-2 en la lactancia. Se trata de una revisión integradora de la literatura realizada en las bases de datos en línea LILACS, BDENF y MEDLINE. Los descriptores utilizados en la búsqueda fueron "Lactancia materna" Y "Coronavirus" Y "Período posparto". La búsqueda cubrió el período de enero de 2021. Se seleccionaron estudios en portugués e inglés. Once artículos cumplieron con los criterios de elegibilidad y compusieron la lectura del resumen de esta revisión. Según los estudios, son varios los factores que impactan la lactancia materna ante el SARS-CoV-2, podemos mencionar que la inseguridad de las mujeres lactantes es el mayor factor que impide el mantenimiento de la lactancia materna y las incertidumbres que la rodean a lo largo de la pandemia. Se concluye que la lactancia materna de las madres con COVID-19 es segura, siguiendo las adecuadas medidas de control de infecciones para prevenir el contagio madre-lactante, y para reducir el impacto del destete precoz, debemos realizar actividades educativas en el período prenatal y realizar capacitaciones con el equipo multidisciplinario para fomentar la lactancia materna exclusiva en vista de sus beneficios.

Descriptores: Amamantamiento; Coronavirus; Período Posparto; Leche Humana; Lactancia; Inmunización Pasiva.

Resumo

O objetivo deste estudo foi compreender os impactos do SARS-CoV-2 na amamentação. Trata-se de uma revisão integrativa da literatura realizada nas bases de dados online LILACS, BDENF e MEDLINE. Os descritores utilizados na busca foram "Aleitamento materno" *AND* "Coronavírus" *AND* "Período pós-parto". A busca abrangeu o período de janeiro de 2021. Foram selecionados estudos em português e inglês. Onze artigos atenderam aos critérios de elegibilidade e compuseram a leitura do resumo desta revisão. De acordo com os estudos, vários são os fatores que impactam a amamentação frente à SARS-CoV-2, podemos citar que a insegurança da lactante é o maior fator que impede a manutenção da amamentação e as incertezas que a cercam durante a pandemia. Conclui-se que a amamentação de mães com COVID-19 é segura, seguindo as medidas de controle de infecção adequadas para prevenir o contágio materno-infantil, e para diminuir o impacto do desmame precoce, devemos realizar atividades educativas no período pré-natal e realizar treinamentos com a equipe multiprofissional para estimular o aleitamento materno exclusivo tendo em vista seus benefícios.

Descritores: Aleitamento Materno; Coronavírus; Período Pós-Parto; Leite Humano; Lactação; Imunização Passiva.

Introduction

Breastfeeding (BF), in addition to being considered the most efficient way to establish a bond between mother and child, is the process by which the infant will receive their food[1]. Breast milk is the most complete food for infants, providing them with all the necessary nutrients for them to develop and grow in a healthy way[2]. The World Health Organization (WHO) recommends breastfeeding up to 2 years of age, and exclusively up to 6 months [3].

BF is defined when the child receives breast milk regardless of receiving other foods or not, whereas exclusive breastfeeding (EBF) is defined when the child is fed only with human milk, which may be direct from the breast or expressed, with no exceptions for solid and liquid foods. There is also the definition of supplemented breastfeeding (AMC) in which the child receives, in addition to breast milk, other foods, which may be solid, semi-solid or liquid. It is important to emphasize that breast milk has the proper balance of nutrients that are provided in a bioavailable and easily digestible form, genetics and maternal nutrition influence its composition, and over time it changes according to the needs of the infant to ensure their nutrition and development[1].

Recently, in December 2019, there was transmission of a new virus called a coronavirus called SARS-CoV-2 identified in Wuhan, China, which causes COVID-19 disease. Soon, this disease began to spread and spread from person to person. COVID-19 presents a clinical picture that varies from asymptomatic infections to severe conditions and may present with an acute respiratory condition and need for hospital care[4].

The most common symptoms are cough, fever, runny nose, sore throat, difficulty breathing, loss of smell, altered taste, gastrointestinal disturbances (nausea/vomiting/diarrhea), tiredness, decreased appetite and dyspnea. Elderly people and people with chronic comorbidities are the ones with the most complications[4].

The number of people infected with coronaviruses in the world is impressive. Just over 86 million cases of COVID-19 and 1,890,342 deaths were confirmed by the beginning of January 2021. Despite technological advances to understand this disease and its interactions with the human body, it is something recent, and it is necessary to search for different data that can add content about COVID-19[5].

The transmission and pathophysiology of SARS-CoV-2 are gradually known among various populations, but

the effects of COVID-19 on public health in women and its results should not be ignored. In pregnant and perinatal women, vertical transmission of SARS-CoV-2 from an infected mother to her newborn is a controversial issue. According to data from the State Health Departments, as of November 19, Brazil registered 12,104 cases of COVID-19 in pregnant women and 223 deaths from the disease[6].

The World Health Organization (WHO) guides the maintenance of breastfeeding due to the lack of evidence that breast milk can spread the coronavirus, up to the time of this publication. The aim of this study was to understand the impacts of SARS-CoV-2 on breastfeeding.

Methodology

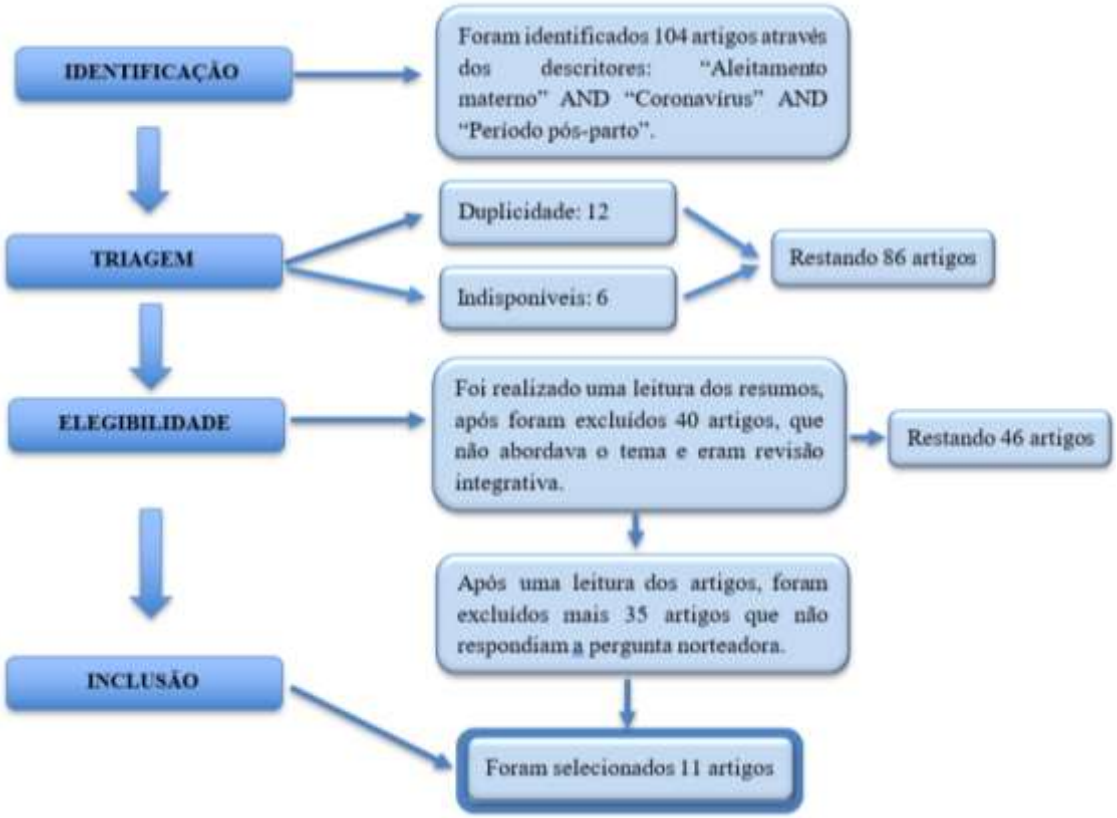
This is an integrative review, whose modality of study is important for decision-making regarding the conduct with health professionals, consisting in the construction of a broad analysis of the literature, which contributes to the synthesis of a given subject, this research method is based on build on previous studies[7], with the following steps: formulation of the guiding question, collection of studies/articles, analysis and interpretation, ending with presentation of results.

The search was carried out in January 2021, using the descriptors "Breastfeeding", "Coronavirus" and "Postpartum period" combined with each other and using the Boolean resource AND, in the Virtual Health Library (VHL), accessing the databases: Latin American and Caribbean Literature in Health Sciences (LILACS), Database in Nursing (BDENF), MEDLINE, in the last 5 years of publication.

It allowed obtaining a total of 108 articles, with 89 of these articles found in the MEDLINE database, 15 studies in LILACS and 4 in BDENF. 98 studies available in full that were related to the inclusion criteria: articles in Portuguese and English, published in national and international journals, and that answer the guiding question. Twelve articles were excluded because they were repeated, 40 integrative review papers and 35 did not answer the following guiding question: What are the impacts of SARS-CoV-2 on breastfeeding?

The selection of articles for the composition of this integrative review was organized in Figure 1.

Figure 1. Search strategies used in databases. São Paulo, SP, Brazil, 2021



As they point out knowledge gaps that need to be filled with the performance of new studies, in government sources, after reading the titles, abstracts and analysis of the articles, it allowed the selection of 11 studies.

Results

The 11 selected articles were organized in Tables 1 and 2, where the sample of studies selected for this integrative review is identified according to year of publication, authors, title and research objectives (Chart 1).

Chart 1. Synoptic table of selected articles containing year of publication, authors, title and results. São Paulo, SP, Brazil, 2021

YEAR OF PUBLICATION	AUTHORS	TITLE	OBJECTIVES
January/2021	Brown, Amy; Shenker, Natalie.	Experiences of breastfeeding during COVID-19: Lessons for future practical and emotional support.	Analyze the experiences of more than 1200 women with babies under 1 year old to understand how the COVID-19 pandemic has affected their attitudes, choices and infant feeding outcomes.
October/2020	Marchiori, Giovanna Rosario Soanno; et al.	Ações da enfermagem nos bancos de leite humano em tempos de COVID-19.	Analyze the actions of the Human Milk Banks coordination to promote the continuity of breastfeeding in the COVID-19 pandemic.
November/2020	Lebrão, Cibele Wolf; et al.	Early Identification of IgA Anti-SARSCoV-2 in Milk of Mother With COVID-19 Infection.	Identifying anti-SARS CoV-2 IgA in breast milk with COVID-19 infection.
August/2020	Ceulemans, Michael; et al.	SARS-CoV-2 Infections and Impact of the COVID-19 Pandemic in Pregnancy and Breastfeeding: Results from an Observational Study in Primary Care in Belgium.	Provide estimates of SARS-CoV-2 infections among pregnant and lactating women, as well as assessing the perceived impact of pandemic women on their breastfeeding practices, medical counseling, and social support during pregnancy and lactation.
August/2020	Pereira, Augusto; et al.	Breastfeeding mothers with COVID-19 infection: a case series.	To present a representative case series of infants who were breastfed from COVID-19 mothers and describe the management of mothers and infants during breastfeeding, the indication of breastfeeding depending on the severity of symptoms, and breastfeeding in preterm infants during admission to the NICU.
August/2020	Yu, Yuanyuan; et al.	Breastfed 13-month-old infant of a mother with COVID-19 pneumonia: a case report.	Document for the first time a case of breastfeeding a baby by a mother infected with SARS-CoV-2 and describe the clinical presentation, diagnosis, treatment and outcome.
August/2020	Gabriel, Miguel Ángel Marín; et al.	Negative Transmission of SARS-CoV-2 to Hand-Expressed Colostrum from SARS-CoV-2-Positive Mothers.	Determine whether SARS-CoV-2-positive mothers transmit the virus to hand-extracted colostrum.
August/2020	Wu, Y; et al.	Coronavirus disease 2019 among pregnant Chinese women: case series data on the safety of vaginal birth and breastfeeding.	To assess whether the vaginal secretions and breast milk of women with coronavirus disease 2019 (COVID - 19) contain coronavirus 2 severe acute respiratory syndrome (SARS-CoV-2).
July/2020	Pereira, Augusto; et al.	Clinical course of coronavirus disease-2019 in pregnancy.	To describe our experience in the clinical management of 60 COVID -19 positive pregnant women treated at our hospital during the first month of the epidemic in Spain.
April/2020	Ministério da Saúde.	Coronavírus Covid-19: Orientações sobre amamentação.	Evaluate measures for coping with the emergency situation in public health in the context of COVID-19 infection caused by the new coronavirus (SARS-CoV-2), on the questioning of the Health Care Network (RAS) regarding the preservation of breastfeeding in a situation of imminent risk of transmission of the respective virus, in situations where the mother presents symptoms compatible with the flu syndrome.
August/2020	Lima, Ana Carolina Maria Araújo Chagas Costa; et al.	Consultoria em amamentação durante a pandemia COVID-19: relato de experiência.	Report the experience of breastfeeding consultants in assisting breastfeeding women during the COVID-19 pandemic.

Chart 2 allows a sample of selected studies from the analysis of the study title and the results obtained by the authors.

Chart 2. Synoptic table of selected articles containing numbering, title and results. São Paulo, SP, Brazil, 2021

TITLE	RESULTS
Experiences of breastfeeding during COVID-19: Lessons for future practical and emotional support.	41.8% of mothers felt that breastfeeding was protected due to the block, but 27.0% of mothers struggled for support and had various barriers arising from the block with some stopping breastfeeding before they were ready. Mothers with less education, more challenging living conditions, and black and minority ethnic backgrounds were more likely to consider the impact of the block as a challenge and stop breastfeeding.
Ações da enfermagem nos bancos de leite humano em tempos de COVID-19.	Two categories were produced: Strategies actions for the maintenance of Human Milk Banks services by digital means to ensure social distance and breastfeeding, in times of pandemic of the new coronavirus; and actions to promote, protect and support breastfeeding maintenance strategies during the pandemic.
Early Identification of IgA Anti-SARSCoV-2 in Milk of Mother With COVID-19 Infection.	Anti-SARS-CoV-2 immunoglobulin A was detected in the two samples evaluated, whose values were 2.5 and 1.9, respectively. No anti-SARSCoV-2 immunoglobulin G was detected. The exclusively breastfed child remained well up to 45 days of age.
SARS-CoV-2 Infections and Impact of the COVID-19 Pandemic in Pregnancy and Breastfeeding: Results from an Observational Study in Primary Care in Belgium.	More than 90% refuted that the pandemic affected their breastfeeding practices, nor indicated that the coronavirus was responsible for breastfeeding cessation. Half of the women thought about giving more breast milk because of the coronavirus. In contrast, women's medical counseling and social support were negatively affected by the block.
Breastfeeding mothers with COVID-19 infection: a case series.	Of the 22 mothers, 20 (90.9%) chose to breastfeed their babies during hospitalization. Timely initiation and skin-to-skin contact in the delivery room was performed in 54.5 and 59.1%, respectively. Eighty-two percent of newborns of mothers with COVID-19 were fed breast milk after 1 month, decreasing to 77% at 1.8 months. Six out of 22 (37.5%) mothers with COVID-19 required transient complementary feeding until exclusive breastfeeding was achieved.
Breastfed 13-month-old infant of a mother with COVID-19 pneumonia: a case report.	IgM and IgG antibodies against SARS-CoV-2 were evaluated in maternal serum and breast milk and in infant serum. The SARS-CoV-2 nucleic acid was not detected in breast milk and antibodies against SARS-CoV-2 were detected in serum and breast milk.
Negative Transmission of SARS-CoV-2 to Hand-Expressed Colostrum from SARS-CoV-2-Positive Mothers.	We obtained seven colostrum samples from different mothers in the first hours postpartum. SARS-CoV-2 was not detected in any of the colostrum samples obtained in our study.
Coronavirus disease 2019 among pregnant Chinese women: case series data on the safety of vaginal birth and breastfeeding.	Among these five deliveries, the primary adverse perinatal outcomes included preterm delivery (n = 2) and neonatal pneumonia (n = 2). One of nine stool samples was positive; all 13 vaginal swabs and five throat swabs and four anal swabs collected from neonates were negative for the new coronavirus. However, one of the three breast milk samples was positive in the viral nucleic acid test.
Clinical course of coronavirus disease-2019 in pregnancy.	Elevated CRP and D-dimer levels were the parameters most frequently associated with severe pneumonia. The neutrophil/lymphocyte ratio was considered the most sensitive marker for disease improvement (relative risk 6.65; 95% CI 4.1-5.9). During the study period, 18 of the women (78%) had vaginal delivery. All newborns tested negative for SARS-CoV-2 and none were infected while breastfeeding. No SARS-CoV-2 was detected in placental tissue.
Coronavírus Covid-19: Orientações sobre amamentação.	There is no recommendation for the suspension of breastfeeding in the transmission of other respiratory viruses[2], it recommends that breastfeeding be continued in case of infection by SARS-CoV-2, if the mother wishes to breastfeed and is in adequate clinical conditions to do so.
Consultoria em amamentação durante a pandemia COVID-19: relato de experiência.	Faced with feelings of fear and anxiety of the nursing mothers, the consultants provided support through counseling, as well as guidance with a multidisciplinary team. All lactating women were breastfeeding and performing social distancing and personal hygiene care, and the consultants reinforced the importance of accessing reliable sources of information. As for breast problems, preventive and curative interventions were performed. The breastfeeding women's satisfaction with the service was perceived.

Discussion

From the analysis of the results of the selected studies, it can be observed that the presence of the SARS-CoV-2 virus was not identified in breast milk, with no justification for suspending breastfeeding.

According to the WHO, whenever possible, skin-to-skin contact should be made, especially after birth to facilitate the NB's adaptation to the outside world (stabilizing the baby's temperature, respiratory rate, heart rate and blood sugar) and establish breastfeeding[8].

Studies show that for breastfeeding to be effective, it is necessary to carry out health promotion policies in the prenatal period, and professional follow-up during the puerperium, requiring a multidisciplinary team throughout

the perinatal period, so that contact can occur after birth. skin to skin and the beginning of breastfeeding in the first hour of life, as well as to maintain exclusive breastfeeding for up to 6 months and a support network is necessary during maternity leave to maintain maternal well-being[9].

COVID-19 brought consequences for everyone, as well as for the mother and child binomial, with social distancing and reduced professional support, there was a change in the support of breastfeeding[9,10].

The encouragement of breastfeeding, motivational actions, and clarification on the importance of milk for the mother-infant binomial underwent changes during the pandemic, due to the attention of health authorities being fully directed to combat the new coronavirus[9]. According to FEBRASAGO it is not recommended to make skin-to-skin contact between the newborn and the mother after delivery. Studies have already demonstrated the presence of SARS-CoV-2 RNA in blood, urine, and stool samples. For this reason, drying and heating the NB followed by bathing is recommended. The timely clamping of the cord must wait 1 to 3 minutes, as there would be no greater risk of vertical transmission, given current data[11].

There are several associated with breastfeeding that impact throughout life, many studies show that children with exclusive breastfeeding reduce health impacts such as allergies, infections, diarrhea, respiratory diseases, otitis, decreases the chances of developing obesity and type 2 diabetes[1,2]. Thus, breastfeeding reduces child morbidity and mortality, reducing the costs of treating diseases in health systems[2].

At the onset of the pandemic, it was not known whether it could be transmitted vertically from mother to baby, in utero or postpartum, by direct respiratory inhalation or breastfeeding. These concerns were broadcast in the news and on social networks, causing fear and anguish for women; these being stressful factors that can negatively impact breastfeeding[9,10].

A survey conducted in China in January/2020 did not detect the presence of SARS-CoV-2 in amniotic fluid, umbilical cord blood, neonatal throat swab and breast milk samples collected from six patients[12,13]. In another study carried out in Spain in March/April 2020, 21 newborns (NB) were breastfed, and all had negative results for SARS-CoV-2 infection, demonstrating the safety of breastfeeding[14].

Evidence-based, accurate and reliable information that is transmitted to the maternal population can benefit them if absorbed, recent information shows that there is insufficient evidence on the possibility of SARS-CoV-2 transmission through other bodily fluids such as breast milk. Even if transmission through breastfeeding did occur, it would be necessary to assess the long-term risks associated with cessation of breastfeeding, considering that most cases of SARS-CoV-2 reported in children run its course with mild symptoms[15,16].

Breast milk provides not only a variety of nutrients for infant growth and development, but also many bioactive components, including antibodies, to provide protection against pathogenic microorganisms early in life. Circulating antibodies can enter breast milk and be delivered to the newborn, providing them with passive immunization, which provides protection against many diseases[17,18].

Since March 18, 2020, the World Health Organization (WHO) has recommended that women with COVID-19 can breastfeed if they wish to do so, based on the idea that through breast milk babies receive antibodies and anti-infective factors that help to protect them from infections[13].

In addition to all the benefits of breastfeeding for the NB, analyzing the point of view of maternal emotional well-being, studies show that breastfeeding facilitates the strengthening of the mother-infant bond, reducing the risk of the mother developing postpartum depression (DPP)[13]. As breast milk can transfer maternal antibodies to the child, protecting it from possible infections.[6]

In a survey carried out in July/2020 with women in the United Kingdom, it shows that 70.3% women stopped breastfeeding due to lack of face-to-face support, 20.9% were concerned about the safety of breastfeeding and 6.5% stopped breastfeeding due to symptoms of COVID- 19[9].

In the context of a pandemic, the lack of support networks for women and their families has become a worrying factor, as the physical presence of the family occupies first place among the references of Brazilian women. Having a family member enables two special aspects: family care for the NB and support for the mother, giving her strength and improving her self-esteem[11].

Women, especially in the first weeks of breastfeeding, in which care needs are greater, were affected by not being able to see health professionals in person or by feeling uncomfortable and fearful during the consultation[9,10].

A study shows that, for some women, being at home clearly facilitated breastfeeding, although others suffer from anxiety and stress due to the responsibilities for caring for the newborn[10].

The directions of the Italian Society of Neonatology (SIN), Spanish Society of Neonatology (SeNeo) and European Neonatal & Perinatal Societies (UENPS) emphasize the importance of maintaining the necessary care during breastfeeding, such as: hand hygiene before and after breastfeeding. contact with the baby, respiratory hygiene and use of a mask and perform surface disinfection[12].

There were also changes in the Human Milk Banks (BLH), they started to use digital means to send leaflets for guidance and care, milking and donation. With social distancing, face-to-face care was reduced, face-to-face actions were directed at the maternity ward, rooming-in rooms, and the Neonatal Intensive Care Unit (NICU). Doubts and difficulties with breastfeeding are being resolved by phone, video calls and through social media[19].

Technical Note No. 5/2020 of the Ministry of Health (MS), in relation to the conducts for the donation of breast milk to BHLs and Human Milk Collection Stations (PCLH) in the context of infection by the new coronavirus, recommends the donation of milk human only by healthy lactating women and without home contact with a person with the flu syndrome. This measure is part of the actions of the BHLs and PCHLs, responsible for guiding candidates for

donation, according to MS protocols and in compliance with RDC No. 171/2006[19].

Researchers reported that none of the studies using nucleic acid detection for the COVID-19 virus had validation of their collection and analytical methods for use in human milk or described the presence of viable SARS-CoV-2 in samples[20].

Knowing the benefits of breastfeeding, the WHO strongly recommends that women with COVID-19 be encouraged and supported to breastfeed, therefore, there is no recommendation for the suspension of breastfeeding in the transmission of respiratory virus[18,20].

All over the world, measures were created that involve basic individual non-pharmacological practices to reduce the transmission of the new coronavirus, such as hand hygiene, respiratory etiquette, use of masks, physical distance, environmental measures, among others. If the lactating woman does not feel safe to breastfeed while she has coronavirus, it is recommended that her milk be withdrawn and offered to the child. Considering that an infected mother can transmit the virus through respiratory droplets, it is recommended to take the following preventive measures to come into contact with the child, wash your hands for at least 20 seconds before touching the baby or before withdrawing breast milk (manual extraction or extraction pump); wear a face mask (completely covering nose and mouth) during breastfeeding and avoid talking or coughing during breastfeeding; the mask must be changed immediately in case of coughing or sneezing or with each new feed[15,18].

According to the studies, there are several factors that impact breastfeeding in the face of SARS-CoV-2, we can mention that the insecurity of lactating women is a major factor that prevents breastfeeding and the uncertainties that surround it throughout the pandemic.

Final Considerations

The benefits of breastfeeding women with COVID-19 are proven by studies carried out based on experiences, being safe, as mothers maintain adequate infection control measures to prevent mother-infant infection. Thus, it is recommended that women with COVID-19 are guided and supported in the breastfeeding process.

There is a negative impact on the lives of these women and their babies, because when breastfeeding is interrupted, it generates emotional and physical consequences for the binomial, including: increased risk of postpartum depression, breast complications such as engorgement and mastitis, risk of impaired maternity due to the breaking of the bond and increased susceptibility to infections, related to the newborn. During the search, there is a small number of studies related to the topic addressed.

The performance of the multidisciplinary team plays an important role in maintaining breastfeeding to reduce damage to the binomial through health promotion activities in the prenatal period, thus alleviating the pregnant woman's feelings of anxiety, fear, and tension. the COVID-19 pandemic.

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