

Perception of mothers with Covid-19 about breastfeeding on infants under 1 year old

Percepção de mães com Covid-19 sobre amamentação em crianças menores de 1 ano

Percepción de madres con Covid-19 sobre lactancia en niños menores a 1 año

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ABSTRACT

Introduction: Breastfeeding is very essential in the development of the neonate, this should be exclusive within the first six months of life, with the arrival of the pandemic by COVID-19, it was affected in mothers who felt fear of infecting their children desisted from continuing breastfeeding for fear of transmitting the virus through the milk when feeding the newborns, some mothers had to adapt to the recommendations provided by doctors to continue feeding, taking into account biosecurity. **Objective:** To identify the perception of mothers with COVID-19 about breastfeeding on infants under 1 year old of age. **Method:** The research is qualitative with a phenomenological approach, with a purposeful sample, the information was collected through semi-structured interviews with mothers with this type of phenomenology. **Results:** It was evidenced that most of the mothers carried out the corresponding isolation and continued breastfeeding with biosecurity measures according to medical directions; likewise, other mothers chose to stop breastfeeding for fear of infecting their babies. **Conclusions:** BF should be maintained even though mothers are diagnosed with COVID-19 with the support of health staff to provide information on how to breastfeed taking into account all biosafety measures and to prevent mothers from stopping breastfeeding because of fear of infecting their babies.

Keywords: Breastfeeding, Biosafety, COVID-19.

RESUMO

Introdução: O aleitamento materno é muito essencial no desenvolvimento do neonato, este deve ser exclusivo nos primeiros seis meses de vida, com a chegada da pandemia pelo COVID-19, foi afetado em mães que sentiram medo de infectar seus filhos desistiram de continuando a amamentar por medo de transmitir o vírus pelo leite ao alimentar os recém-nascidos, algumas mães tiveram que se adequar às recomendações fornecidas pelos médicos para continuar a alimentação, levando em consideração a biossegurança. **Objetivo:** Identificar a percepção de mães com COVID-19 sobre o aleitamento materno em bebês menores de 1 ano. **Método:** A pesquisa é qualitativa com abordagem fenomenológica, com amostra proposital, as informações foram coletadas por meio de entrevistas semiestruturadas com mães com esse tipo de fenomenologia. **Resultados:** Evidenciou-se que a maioria das mães realizou o isolamento correspondente e continuou amamentando com medidas de biossegurança conforme orientações médicas; da mesma forma, outras mães optaram por interromper a amamentação por medo de infectar seus bebês. **Conclusões:** O AM deve ser mantido mesmo com as mães diagnosticadas com COVID-19 com o apoio da equipe de saúde para fornecer informações sobre como amamentar levando em consideração todas as medidas de biossegurança e evitar que as mães interrompam a amamentação por medo de infectar seus bebês.

Palabras clave: Amamentação, Biossegurança, COVID-19.

RESUMEN

Introducción: La lactancia materna es muy fundamental en el desarrollo del neonato, esta debe ser exclusiva dentro de los primeros seis meses de vida, con la llegada de la pandemia por el COVID-19, se afectó en las madres que sintieron miedo de contagiar a sus hijos desistieron de continuar con la lactancia por temor a transmitir el virus a través de la leche al alimentar a los recién nacidos, algunas madres debieron adaptarse a las recomendaciones brindadas por los médicos para continuar la alimentación, teniendo en cuenta la bioseguridad. **Objetivo:** Identificar la percepción de las madres con COVID-19 sobre la lactancia materna en lactantes menores de 1 año. **Método:** La investigación es cualitativa con enfoque fenomenológico, con muestra propositiva, la información se recolectó a través de entrevistas semiestructuradas a madres con este tipo de fenomenología. **Resultados:** Se evidenció que la mayoría de las madres realizaron el aislamiento correspondiente y continuaron con la lactancia materna con medidas de bioseguridad según indicaciones médicas; asimismo, otras madres optaron por dejar de amamentar por temor a contagiar a sus bebés. **Conclusiones:** La lactancia materna debe mantenerse a pesar de que las madres sean diagnosticadas con COVID-19 con el apoyo del personal de salud para brindar información sobre cómo amamentar teniendo en cuenta todas las medidas de bioseguridad y evitar que las madres dejen de amamentar por temor a contagiar a sus bebés.

Palavras-chave: Lactancia Materna, Bioseguridad, COVID-19.

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INTRODUCTION

Breastfeeding (BF) is a biological process that women experiment after childbirth, its purpose is to feed and protect the newborn, exclusively during the first six months of life. The benefits of exclusive breastfeeding (EBF) are diverse and have been disseminated to make mothers be aware of the importance of breastfeeding in order to avoid the abandonment that affects the infant's development (Verde et al., 2020). The benefits of BF promote a mother-child relationship, strengthening psychomotor development and brain growth of the child as some of the main benefits provided by BF, this also helps in the immune system, being the first food that enters the baby's body, providing the immune system to promote protection for some diseases that occur in childhood such as: diarrhea, allergies, respiratory infections and also influences the post natal growth of the baby (Luzuriaga, 2019).

The benefits of breastfeeding in mothers are several, among them a better postpartum physiological recovery is mentioned, it has been seen that it supports reducing the risk of obesity, also as a natural method of contraception during the six months postpartum, in addition it avoids breast cancer and economically, since the BF generated by the mother is natural, formula milk would not be bought (Castillo et al., 2020).

In December 2019, cases of strange pneumonia appeared in Wuhan, China caused by an unknown pathology that affected the entire population of this country with great ease, this was categorized as the severe critical respiratory syndrome virus type-2 (SARS-CoV-2), called the disease, COVID-19. (Accinelli,2020) On March 11, 2020 the World Health Organization (WHO) declared a pandemic by the high outbreaks generated in several countries of the world and the high deaths due to this virus. For this reason, the governments of each country decided to carry out indefinite confinements and quarantines in order to reduce the number of cases (Vargas, 2020). Transmission of the SARS-CoV2 virus is by droplets of secretions of infected persons, contact with contaminated surfaces, these secretions can reach up to 2 meters around the person carrying the virus, hands transport the virus, the entrance of the virus is through the mucous membranes of the mouth, nose and eyes. According to research, no traces of DNA of the virus have been found in the breast milk of women who have been infected (Medina et al., 2021).

The COVID-19 pandemic has marked a sudden turn in everyone's health, that is why this study is interesting to know about the perceptions that mothers had at the time of breastfeeding. During this time of pandemic there was a lot of information about whether to continue breastfeeding or to stopped breastfeeding in mothers whose tests were positive for this virus. There are many scientific articles on COVID-19, most of them focus on the pathology such as the vast majority talking about the transmission of the virus, means of infection, signs and symptoms, but very few talk about how it affects the vision of an infected mother with COVID-19, when feeding her baby (Diaz, 2021).

In a study conducted with a group of 9 cases of COVID-19 in pregnant women in the third trimester, they presented different symptomatology: 7 cases presented fever, 4 with cough, 3 with myalgia, 2 with sore throat and general malaise. In another 3 cases an aminotransferase picture was found in infants born with dystocia delivery. In 2 of these cases there was a loss of fetal well-being and there was no report of fetal asphyxia, all the NBs had an Apgar scale >9 at 5min. Samples of amniotic fluid, umbilical cord blood, oropharyngeal swab and breast milk were collected for traces of SAR-Cov-2 virus but the tests were negative (Martin, 2020). In a different study done in China, Italy, United States and Australia, a universe of 114 mothers infected with COVID-19, their breast milk samples were tested for the presence of antibodies to the virus, the most important factor against this virus being the feeding of this milk (Fernandez-Carrasco et al. 2020).

The risks of horizontal transmission (drops, contact or fecal-oral), or by relatives who were in contact with the child, described symptoms of fever accompanied by vomiting and cough. According to the study performed by the pediatrics department in a universe of 2,143 cases, 90% presented mild to moderate symptoms, in the part of breastfeeding there was a risk of respiratory complications (hypoxemia) and digestive symptoms, this study did not reveal what type of food was being given to infants. (Ministro Sanidad Española, 2020).

Santos-Sara (2020) made research in Spain, where she examined the breast milk of two mothers who tested positive for SARS-Cov-2, both had mild symptoms, the first mother evidenced complications on the third day after admission to the hospital. Her baby also developed mild symptoms. The second mother presented complications on the fourth day and her baby also presented moderate complications (jaundice, saturation problems and breathing difficulties). This study was based on collecting four days after having been detected with the COVID-19, from the first mother the four tests were negative, while from the second mother all four tests were positive, after this, two more samples of BF were taken again on the 25th day after having been diagnosed, obtaining negative results. The results obtained in this investigation conclude that the first mother took infection control measures from the beginning of the symptoms (surgical mask, precaution when feeding the baby, hand washing, disinfection of the breasts).

Most of the articles linked to the subject are from the country of China where the pandemic originated, in Latin America this type of study was not done deeply, a series of cases of mothers and newborns with positive COVID after delivery

were reported. On the other hand, Sola et al (2020) state that a request was made by the "RED SIBEN" to share information on cases reported, resulting in 86 cases reported in 7 member countries: Argentina, Colombia, Ecuador, Equatorial Guinea, Honduras, Peru and the Dominican Republic. All this sample group was tested for CRP. In the analysis given in the feeding, 2 newborns were excluded, who died, and 6 mothers who were transferred to the ICU (Intensive Care Unit). Of the 78 mothers with COVID-19, 24% of them were able to maintain exclusive breastfeeding with protective measures, 13% of the mothers had to extract milk and were administered by the health personnel, it should be emphasized that no mother was in contact with her child.

In Ecuador there are no research on breastfeeding in mothers with COVID-19, positive according to Arévalo et al, (2020) in our country on July 2021 there were more than 480,720 confirmed cases being the provinces of Pichincha and Guayas with the highest number of cases. The number of cases in pregnant women in our country was 10,207 with 48 deaths which means 0.47% of cases, infants remain the least affected group denoting 0.2% (Salvador et al., 2020). In our country, based on the reports from other research, the use of an N95 mask was suggested when the mother is going to breastfeed the baby, hand washing with soap and water before and after handling the newborn, and the environment should remain clean and disinfected (Zabala et al., 2021).

The objective of the present investigation is to identify the perception of mothers with COVID-19 on breastfeeding on infants under 1 year of age.

METHODS

The research is qualitative, with a phenomenological approach, a purposeful sampling was used since the patients are mothers in the process of breastfeeding and with children under 1 years of age, which are very rare to find. In addition, semi-structured interviews were conducted, consisting of 9 open questions, which were recorded using an electronic device and then transcribed word by word so as not to lose any information from the mothers in order to achieve the objectives of the study.

In the collection of the information, a total of 10 interviews were conducted with mothers with COVID-19 on breastfeeding on infants under 1 year of age, the information was saturated, the analysis of the information in the interview applied to the mothers was done complete grounded theory in the data; which allowed producing concepts and theories using the data gathered, the presentation of the results is made based on categories and subcategories occurred from the discourse of the key informants or participants of the study.

This research considered the ethical principles of privacy, confidentiality and respect for patients and their families, contemplating the Helsinki declaration, that guarantees the safety of people, through data protection and promoting the ethics of research, as well as the use of informed consent in which participants voluntarily confirmed their collaboration with the research. (Miranda & Villasís, 2019).

RESULTS

Analysis of the interviews by categorizing the information.

Category 1: Sociodemographic Data

Subcategory 1: Age.

The 10 mothers interviewed Grace, Mary and Karina said that they are: "27 years old", while Alexandra H., Alexandra and Liliana said they are: "24 years old", Genesis and Jenny said that they are: "26 years old", Joselyn said she is: "26 years old", and finally, Nancy said that she is: "28 years old"

Subcategory 2: Formal Instruction.

The level of education of the mothers mentioned Grace, Liliana, Alexandra, Nancy, Genesis, Alexandra H., who have a "College" level of study, while Jenny, Karina and Josselyn have a "School" level, and finally Mary mentioned that she studied: "High School".

Subcategory 3: Jobs and Occupations.

The work activity of the interviewed mothers in the case of Karina and Mary was: "Housewife", while Alexandra H. stated that she was "Unemployed", on the other hand, Grace, Jenny, Genesis and Nancy indicated that they were: "Working", while Josselyn, Liliana and Alexandra indicated that they were: "Studying".

Category 2: Experiences, Feelings and perception of the mothers.

Subcategory 1: How did you feel when you found out you had COVID-19?

The patient Grace told us "I was worried because I did not know if my baby was infected and how he would react to the disease because he is a baby, and considering that there is no vaccine for them", on the other hand, Jenny told us "I was afraid, I felt anguish knowing that I was infected with this virus that was killing many people, I was afraid that something would happen to my baby", Karina said "I was a little scared, although I knew that if I took care of myself everything would be fine, I was afraid that I ran the risk of dying and leaving my baby alone, although I had the support of my parents", on the other hand Josselyn said "I was disconcerted, I did not know where I had been infected, I always took the necessary care to avoid infection of this disease, I was afraid for the life of my baby", she added "I was afraid that I would die".

Liliana says "I was filled with fear because it was the second time, I had COVID and the doctors still did not know how to fight the disease, I was fear for my son's life because I could not take any medication for the symptoms", Alexandra H, said "I was anxious to know that I was infected and that something serious could happen because I was in contact with my baby, I thought that he could die".

Mary mentioned "When they told me the news that I was positive, I was very scared, I did not know how I got infected, I was very anxious about how my life and my son's life was going to be with this news", Alexandra said "When I heard the news that I was infected, I was very scared, I did not know what to do, the first idea in my mind was death, I did not know how I got infected, I was very anxious thinking about how my life and my son's life was going to be with this news", I was very anguished thinking about how my life and my son's life was going to be after this news", Genesis told us "Learning that news was fatal, I started to cry because I had to move away from my son, I was not going to have him in my arms, I felt like dying inside, I thought maybe I had already infected him by giving him my milk", finally Nancy said "That was the worst news of my life, I was very careful, I used alcohol all the time but even so I was infected, I was afraid for my son's life".

Subcategory 2: Tell me about the breastfeeding process, was it exclusive breastfeeding after being diagnosed with COVID-19 and if not, how did you do it?

The fear of infecting her children with this disease said Grace "I continue to be exclusive" Jenny indicated: "I breastfed my baby with a mask covering the nose and mouth well washed hands and disinfected with alcohol, I only gave him my breast I had a lot of milk so I did not need formulas to complete the feeding of the baby", Karina said "Yes, the breastfeeding I did was exclusive, although sometimes I felt that I did not have much milk, but my baby did not cry then I did not give him any formula milk also I did not have much money to buy formula, what I consumed was a lot of liquids to have milk for my baby", Josselyn said "When I found out I got COVID-19 I followed the doctor's advice which consisted of using a coat, the correct use of the mask, washing my hands, also washing my breasts to avoid passing the virus through my breast to my baby and it remained exclusive" on the other hand Liliana mentioned "It had already been 2 months since I was infected and when my son was born everything had already normalized in my immune system which allowed me to breastfeed normally", Alexandra H. mentioned: "It was complicated, they gave me antibiotics that would affect breastfeeding so I had to suspend it until I got out of COVID-19 which was about two weeks that I did not give him my breast, my parents took care of my daughter", Mary said that "This stage was very hard I had to move away from my son, I spent alone and sad in my room locked up taking medication that the doctor sent me and I could no longer give my breast to my baby", Alexandra said "This stage was sad I moved away completely from my son I did not give him my breast I spent alone in my room taking medication that the doctor sent me until I was negative for this virus", Genesis mentioned "This stage was somewhat complicated I had to be very careful when feeding my son, I did breastfeed exclusively, it is what the doctor told me", finally Nancy said "I did exclusive breastfeeding, I took all the precautions that the doctor told me and nothing happened to my son I never gave him formula milk".

Subcategory 3: What did you feel when you started COVID-19 isolation?

The feelings that the interviewed mothers had to go through were very sad, as Grace indicated: "Anxiety, worry, sadness, not knowing if my son was infected, distancing myself from him because of the isolation, even though we were in the same house, which decreased the amount of milk", on the other hand Jenny indicated "I had a lot of anxiety, sadness, fear, I was very anxious, sad, afraid that something would happen to me or to the baby, since in the news I heard daily how the contagions continued to rise", Karina said "I felt stressed, very sad to know that I was only going to be alone with my daughter, not being able to go to my parents for support, but we always made a video call so that they could see their granddaughter", Josselyn told us "I had a lot of anxiety, sadness, since I did not have much milk, I had to isolate myself from my parents, I feared for my son's life that something could happen to him", Liliana said "I felt guilty because I feared for my son's life since he was the first one I had, every time I was going to drive him I always washed my hands", Alexandra H. "Feelings of guilt for infecting me and the helplessness of not being able to be with my son as a mother, every day that I was isolated my mother would make video calls to me, to at least see him, it was a very difficult stage I went through", Mary "I was very sad, I felt helpless for not being able to be with my baby, I was worried about how he was, even though my husband took care of him, I felt like running out to hug him when he cried", Alexandra said "I felt worried and at the same time very

sad, I felt helpless not knowing what to do and I was even more anguished not being able to be with my baby, I was worried about how he was doing, if he was feeding well, although my husband was in charge of taking care of him, I felt like running out to hug him when he cried", Genesis "I felt very sad to have to be isolated from my baby, it was very unpleasant that situation that I had to live", Finally Nancy said "I was very sad to know that I could not have my baby by my side, but I had to do it so as not to infect him and to take care of him from this virus, which was very ugly because on tv news you could hear how many deaths there were due to the virus".

Subcategory 4: At the end of your contamination period, what was the perception or how you feel you had during the contact with your baby?

At the end of the contamination period, the mothers felt very happy, as indicated by Grace "Excited to see again that I was already with him, and I did not cover myself to feed him", Jenny "I felt very happy, because after 1 month of being locked up alone with my husband and my daughter, we could go out to see my father so he could hug his granddaughter", Karina "My baby was with me all the time, it was not difficult to be together again, what made it difficult for me was that I was still wearing a mask to be able to handle him, after that everything was normal", Josselyn: "I felt very happy, I was excited to have finished this stage that was hard, I left the mask, the suit aside and I could hold my baby without so much care, it was something beautiful that I still remember", Liliana indicated "Joy to know that my son did not have any complication despite I was infected I gave him my breast", Alexandra H. "It was a feeling of relief, joy and excitement, but also of concern because I did not know if I would have enough milk to breastfeed him since the disease decreased my milk", on the other hand, Mary cried with emotion "It was a moment of great joy, that day I cried with happiness because after so long I could hug my little one and hold us in my arms, after a long time I could give him my breast and my milk and I did not give him formula milk anymore", Alexandra "It was a moment of mixed feelings, a lot of joy, That day I cried with happiness because after so long I was able to hug my little one and hold him in my arms, after a long time I was able to give him my breast and my milk, breast milk is the best in the first year of life", Genesis "It gave me a lot of joy, I hugged my son very tightly, there were moments that I did not spend with him because I could not give him my breast, Nancy "It filled me with joy to know that I was no longer infected, it was a happiness to know that after being locked up for so long I could hold my baby in my arms and feed him because my milk is much better and would help him grow".

Category 3: Biosafety.

Subcategory 1: Which biosafety procedures did you use for breastfeeding your child?

The patients Grace, Alexandra, Genesis, Alexandra H. and Liliana indicated "I used to wash my hands, clean my breasts, put on a mask, alcohol and a disposable gown", Jenny "I breastfed my baby with a mask that covered my nose and mouth, washed my hands well and disinfected with alcohol, I only gave him my breast, I had plenty of milk so I did not need formulas to complete the baby's feeding", Karina mentioned "I washed my hands with soap and water and sometimes I only disinfected with alcohol before I fed my baby, However, Josselyn "I only used a disposable gown and mask that I changed every so often, in addition to washing my hands every so often before and after being with my baby, Mary "I did not use any safety measures, I did not breastfeed my son during all this time of isolation", Nancy "For one day I did not give him my breast until I saw what the doctor told me and he ordered me to use a mask, disposable gown, to wash my hands all the time and to wash my breasts before giving him the breast".

Subcategory 2: Did you perform any type of isolation when you found out you had COVID 19 in order to take your child?

The worry about the COVID-19 virus enforced the mothers to isolate themselves, as mentioned by Grace "I tried not to spend much time near him, I spent most of the time with my mother, and I only approached him to feed him and applied biosecurity measures", Jenny "I did isolate myself, I had to leave my father's house to avoid infection, I stayed almost a month at my uncle's house who lent me to stay there until the virus was no longer inside me", Karina "I lived alone so I asked my relatives not to visit me, I was locked in a room where I had everything to be able to spend the days in isolation and that way it was just me and my baby", Josselyn "If my husband with the help of my mother were watching over my son, I went to feed him every three hours with all the care", Liliana "No because I lived alone with my mother and I could not leave her, we both stayed together until I was negative in the COVID-19 test", Alexandra H. "Yes, I had isolation while I was negative for COVID-19", Alexandra H. "Yes, I had isolation while I was negative for COVID-19". "Yes I was in isolation while I tested negative for the test", Mary "Yes I was in isolation, I was locked in my room all the time, I could not see my son, touch him, much less give him my breast", Alexandra "Yes I was in isolation, I was locked in my room with procedures that the doctor gave me, I could give him my breast and hug him for a few minutes", Genesis "Yes I was in isolation, only I, my son was with his father, I was the only one my son spent with his father and I gave him my breast when he cried with all the biosecurity measures that were recommended to me", finally Nancy said "I did isolation, I was locked in a room, without being able to see my son, or touch him, much less give him my breast, what consoled me was to be able to see him by video call".

Subcategory 3: Who took care of the baby during isolation period?

With the appearance of COVID-19, isolation was essential to avoid contamination, especially for babies who had to be disconnected from their parents, as specified by Grace "My mother and my sister", Jenny "She was in neonatology for a few days because she was born with a low birth weight, but a week after I was discharged I took care of her myself with the help of my husband", Karina "I had to take care of my baby because I live alone and my family could not go near her for fear that they would get infected, besides my father is already old and I had to take care of him", Josselyn "My husband and my mother took care of my baby, they only gave her to me to give her my breast when necessary", Liliana "My mother was the one who took care of us during the whole time I was infected", Alexandra H. "My parents helped me during the whole time I was infected", Josselyn "My parents helped me during the whole time I was infected". "My parents helped me the whole time I was in isolation, she took care of me for two weeks until I tested negative for COVID-19", Mary "My husband took care of my baby for the whole time with my mom's help when he went out to work", Alexandra "My parents helped me the whole time", Genesis "My mom took care of me when I tested negative for COVID-19", Genesis "My mother took care of my baby with the help of other family members while my mother took care of her daily activities", on the other hand Nancy said "My parents took care of my baby with the help of my husband when I was locked up".

Category 4: Complications.

Subcategory 1: During your COVID-19 treatment, did you have any complications that decreased your milk production or did you have any changes in your breast milk, color, quantity, odor?

Since this was a new disease, Grace and Alexandra stated that there were complications: "Yes frequent cough, breast pain in those 2 weeks I noticed that the amount of milk decreased considerably, the milk changed color became yellow, at other times it took a green color", Jenny "I did not have any complications only had back pain, but the doctor told me that it was normal due to COVID disease, I had enough milk so it was good for my baby and it did not change color", Karina "I did not have many difficulties, I only had a dry cough, a little back pain, but the doctor told me that it was normal, Josselyn "The only complication I had was that my milk decreased, I no longer had much milk, that scared me because before I had enough milk to feed my baby, but the doctor told me that this was due to the disease and recommended me to give formula milk", Liliana "None, everything was still normal, the milk did not change color, the amount was the same as I had despite the fact that they told me that my milk could decrease", Alexandra H. "The amount of milk decreased in my baby's milk and it did not change color", Karina "I did not have many difficulties, I only had a dry cough, a little back pain, but the doctor told me that this was normal for the disease, a friend recommended me to use hot newspaper for the pain and the milk decreased". "The amount of milk decreased during the period that I was under treatment, I noticed that my milk became a green color but I did not ask the doctor why did I not give him my breast during that time", Mary "I did not notice any change, I was more worried about going out to see my son how he was, because it made me sad, but after I got out of the infection I did notice that my milk decreased", Genesis "I didn't have any problem, the milk I had was normal as it was at the beginning before I was infected with the virus", finally Nancy said "During all the time I spent, the milk was leaking because I couldn't give my baby from my breast, but I did notice a greenish color in my milk and since I didn't give it from my breast I noticed that it diminished in a certain way".

Category 5: Immunizations

Subcategory 1: ¿ Were you immunized against COVID-19 before you were infected?

The mothers observed that they had the ASTRAZENCA vaccine as evidenced in the testimony of Grace, Josselyn, Alexandra, Genesis and Nancy mentioned "Yes, I had 2 doses of ASTRAZENCA" while Jenny indicated "At that time I did not have any doses, since at that time the vaccines had not arrived for everyone yet". On the other hand, Karina commented that "No, I did not have any vaccine for the moment I was afraid to get the vaccine and that it would affect my baby." and finally Liliana, Alexandra H. and Mary commented that "Yes I had two doses of PFIZER vaccine."

DISCUSSION

COVID-19 is a disease that affects all ages of the people, the rate of infection in the neonatal population has shown a low incidence and to date in the neonatal stage there are few cases listed which offered a satisfactory evolution, before these pediatricians have suggested feeding breast milk from the first hours of life using biosecurity measures necessary to prevent mother-child infection because the advantages of breastfeeding balance the risks of transmission of the virus. (Baglán, 2020).

The interviewed mothers went through complex periods during their breastfeeding, experiencing stages of worry, anxiety and stress caused by quarantine, in addition to the absence of knowledge about the contagion, which caused them to stay away from their children for fear of repercussions on the infant's health. Similarly, it should be noted that the sample studied consisted of 10 mothers who had COVID-19, had children under 1 year of age were confirmed by a laboratory test

who had children under 1 year of age.

Thus, the results obtained and analyzed in the research are confirmed by other research that contribute to the study. In this sense, Diaz et al. (2021) report that the mere fact of being diagnosed with the COVID-19 virus generated in the mother episodes of anxiety, depression, acute stress when she knew that she had to isolate herself from the mother or the mother-child separation, limiting maternal care. Mothers also experience fear and uncertainty concerning the care and administration of the baby because they do not know what decision to make regarding breastfeeding, especially due to the absence of scientific evidence. As showed in the results gotten, the mothers mentioned the episodes of anxiety generated by learning of the diagnosis to the point of having to isolate themselves in another room so as not to infect the infants, thus not being able to feel the warmth of the infant and losing the mother-child connection, Therefore, they chose to seek help from health specialists in order to see how to endure feeding the infant, the huge majority of mothers used biosecurity measures on the other hand there were mothers such as Alexandra H, Liliana who did not feed for fear of infecting their babies.

Chavez (2022), in his research about the experiences of breastfeeding in new mothers during the confinement of COVID-19 in the health center of Wanchaq, Cusco, 2021 shows that 40 new mothers of Wanchag, indicates that the biosecurity measures they implemented was the use of masks at all times of breastfeeding, This made them uncomfortable because they felt that it did not allow them to breathe, but at the end of this phase of the contagion, the bond and the feelings they perceived were of happiness, joy, love and a connection with their children. and Liliana used biosecurity measures in order to continue feeding their children, it should be noted that Karina used a mask and hand disinfection before handling, on the other hand Alexandra H. and Liliana waited until the virus was no longer in her body to continue feeding again.

In the research conducted by García et al, (2021) on "Knowledge and behavior of postpartum mothers, suspected and/or confirmed with COVID-19 on breastfeeding in Ill Yanahuara ESSalud - 2021 Hospital " mentions that mothers with a higher level of schooling had knowledge about the transmission of COVID through breast milk, It should be noted that all the mothers in this study did not receive information about the risks of breastfeeding. All the mothers with a high level of schooling continued with BF despite being diagnosed with the disease, taking into consideration the recommendations of the doctors, while Mary with a low level of schooling chose to suspend feeding her baby until all the symptoms had passed and then continued breastfeeding.

Galindo-Sevilla et al., in their study called breastfeeding and COVID-19, describes events of children who were infected by SARS-CoV-19, by means other than breastfeeding, and also describes the impact of long-term separation from breastfeeding, such as the loss of vital nutrients provided to the baby in its development, producing an alteration at the physiological level and favoring the development of respiratory diseases. The isolation referred to by the author is to prevent the mother from infecting the baby with droplets at the time of breastfeeding, also risking damage to the mother-child bond.

The World Health Organization (WHO) recommends exclusive breastfeeding in mothers with a confirmed diagnosis of COVID-19 taking into account that no traces of the virus have been found in breast milk, WHO and UNICEF suggest that the mother express her milk taking into consideration all biosecurity measures. Once the milk is extracted, the baby should be fed in a cup and/or spoon exclusively for this baby, taking into account that the person who is going to feed the baby should wash his/her hands before handling the baby (WHO, 2020). (WHO, 2020) The SCI, not only focuses on feeding the child, but also on the mother because of her diagnosis she needs the support of health professionals and her family to go through this hard time, since being in this situation they seek by other digital media information on how to breastfeed when infected (Ibarra, 2021). The results gotten along this research shows that the mothers received the support of their closest relatives to face this difficult situation they were going through. In addition, they were in charge of the child's care all the time since their parents were performing the corresponding isolation, in some cases formula milk was used to supply the needs in terms of feeding, since some mothers mentioned that in the course of the disease, they noticed a slight decrease in milk.

The vaccines approved for breastfeeding women are PFIZER and ASTRAZENECA, these vaccines were approved by the WHO, as they are safe for the mother and the baby, the vaccines against COVID-19 are based on mRNA does not contain live microorganisms, this does not cause an infection of the virus, the application of the vaccine will always be done with the consent of the mother previously informed by health personnel (Ares-Segura et al. 2021). In agreement with the results obtained, we can see that most mothers had the ASTRAZENECA vaccine, on the other hand, another mother indicated that she did not have any dose because at the beginning of the disease there was no vaccine, and finally, one mother was afraid to get the vaccine for fear of transmitting the virus at the time of feeding.

The change of color in breast milk is due to the infection of the mother, in this case due to COVID-19, breast milk modifies its composition to produce more immunoglobulins in order to protect the baby who will receive this breast milk (Diaz,2022). Most of the mothers in our research mentioned the sudden change in the greenish color of the milk during the course of this disease, at the end of it, it was taking the color corresponding to what it was before being diagnosed, despite this radical change that occurred, they continued with BF, since they consulted with their doctors and he indicated that it was

normal produced by the infection.

CONCLUSIONS

Breastfeeding is essential for the physiological and neuronal growth of the baby, at this time of COVID-19 it was a challenge to continue with exclusive breastfeeding because of the fear and uncertainty that it generated in mothers for spreading the virus through contact with the infant, but it was found that there were no traces of this virus in the milk. The few articles that existed at that time showed negative results to the tests performed to the milk extracted from mothers with COVID-19, that is why the WHO, pronounced on this issue of breastfeeding these women with COVID-19 implemented biosecurity measures so that breastfeeding can be given without any inconvenience.

The vaccines that were applied to this group of mothers were approved by the WHO; ASTRAZENECA and PFIZER vaccines were used for this group of breastfeeding mothers, thus ensuring the generation of antibodies in the mother and consequently transmitting them to the babies through breast milk.

It is of vital that a multidisciplinary health team educate the mother on how to breastfeed mothers diagnosed with COVID-19, the fact of knowing the diagnosis puts the mother in an atmosphere of uncertainty, sadness, anxiety about whether or not to breastfeed the baby, the health staff should give timely and efficient information on the use of biosafety equipment such as the mask, use of gowns, washing the breasts before and after providing breast milk, feeding time and most importantly, hand washing before handling the baby and hand disinfection of hands, , the washing of hands before handling the baby and the disinfection of hands before breastfeeding the baby, will prevent mothers from cutting the direct link with their children, which is only generated by breastfeeding.

The support of family members is of very important for mothers; isolation as a preventive measure to avoid contagion makes them vulnerable accompanied by an accumulation of emotions when they are unable to play their role as mothers in their entirety, which generates high levels of anxiety and stress that must be channeled through the support of the closest family members.

REFERENCES

- Accinelli, R. A., Zhang Xu, C. M., Ju Wang, J.-D., Yachachin-Chávez, J. M., Cáceres-Pizarro, J. A., Tafur-Bances, K. B., Flores-Tejada, R. G., & Paiva-Andrade, A. D. C. (2020). La pandemia por el nuevo virus SARS-CoV-2. 2020 08 28. *Revista peruana de medicina experimental y salud pública*, 37(2), 302–311. Disponible en: <https://doi.org/10.17843/rpmesp.2020.372.5411>
- Baglán-Bobadilla, Norma Victoria. (2020). Breastfeeding promotion in times of COVID-19. *Revista Información Científica*, 99(5), 410-411. Epub 27 de octubre de 2020. Recuperado en 04 de enero de 2023, de http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1028-99332020000500410&lng=es&tlng=en.
- Castillo Burgos, R. I., & Blanco Millan, J. G. (2021). Conocimiento y beneficios de la lactancia materna exclusiva en madres de lactantes menores de 6 meses, Hospital Nacional Hipólito Unanue 2020. Universidad Interamericana para el Desarrollo. Recuperado a partir de <http://repositorio.unid.edu.pe/handle/unid/133>
- Centro de Coordinación de Alertas y Emergencias Sanitarias. Enfermedad por coronavirus, Covid-19. España: Ministerio de Sanidad, 2020 [acceso 01/05/2020]. Disponible en: https://www.msbs.gob.es/profesionales/saludPublica/ccayes/alertasActual/nCov-China/documentos/20200404_ITCoronavirus.pdf
- Chavez Garcia, A., & Guzmán Carbajal, L. M. (2022). Experiencias de la lactancia materna en madres primerizas durante el confinamiento de Covid 19 en el Centro de Salud de Wanchaq, Cusco, 2021. Universidad Andina del Cusco. Disponible en: <https://repositorio.uandina.edu.pe/handle/20.500.12557/5020>
- De la Mora Martín, Fernando. (2020). COVID-19 y lactancia materna. *Revista Cubana de Pediatría*, 92(Supl. 1), e1136. Epub 20 de julio de 2020. Recuperado en 20 de enero de 2023, de http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S0034-75312020000500031&lng=es&tlng=pt.
- De, F., Tesis, M., Cirujana, M., Josué, M., Quispe, I., Especialidad, A., Neonatólogo, :, Rocío, M., & Contreras, C. L. (n.d.). UNIVERSIDAD NACIONAL DE SAN AGUSTÍN DE AREQUIPA. Edu.Pe. Retrieved January 24, 2023, from <http://repositorio.unsa.edu.pe/bitstream/handle/20.500.12773/13486/MCgamocg.pdf?sequence=1&isAllowed=y>
- Del, R., De, C., García, P., Pérez, V., & Fernández, A. (n.d.). VACUNA FRENTE A COVID-19 Y LACTANCIA MATERNA. *Aeped.Es*. Retrieved January 25, 2023, from https://www.aeped.es/sites/default/files/aep_lactancia_y_vacuna_covid_2021.pdf
- Díaz Colina, José Antonio. (2021). Lactancia materna en el contexto de la pandemia de la COVID-19. *Revista Habanera de Ciencias Médicas*, 20(5), e4412. Epub 10 de octubre de 2021. Recuperado en 20 de enero de 2023, de http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1729-519X2021000500002&lng=es&tlng=pt.
- Díaz, R. G. (2022). Cambios de color de la leche materna al contagiarse de covid, ¿es normal? *Ser Padres*. <https://www.serpadres.es/bebe/9254.html>
- Fernández-Carrasco, F. J., Vázquez-Lara, J. M., González-Mey, U., Gómez-Salgado, J., Parrón-Carreño, T., & Rodríguez-Díaz, L. (2020). Infección por coronavirus COVID-19 y lactancia materna: una revisión exploratoria. *Rev Esp Salud Pública*, e202005055–e202005055. <https://pesquisa.bvsalud.org/portal/resource/pt/biblio-1128797>

Galindo-Sevilla, Norma del C., Contreras-Carretero, Nilson A., Rojas-Bernabé, Araceli, & Mancilla-Ramírez, Javier. (2021). Lactancia materna y COVID-19. *Gaceta médica de México*, 157(2), 201-208. Epub 23 de junio de 2021. https://www.scielo.org.mx/scielo.php?pid=S001638132021000200201&script=sci_arttext

Hernández-Escolar, Jacqueline y López-Saleme, Rossana. Lactancia materna en tiempos de COVID-19. Cartagena (Bolívar): Universidad de San Buenaventura, Universidad de Cartagena, Red Internacional de Investigadores en Lactancia Materna (RED INLAMA), 2021. Disponible en: https://www.researchgate.net/profile/Nubia-Castiblanco-Lopez/publication/360503600_CAPITULO_VLactancia_materna_y_programa_Madre/links/627aa4a73a23744a7273a79c/CAPITULO-VLactancia-materna-y-programa-Madre.pdf#page=62

Ibarra Peso, Jacqueline, Bustamante Guzmán, Carla, & Torres Muñoz, Javiera. (2021). Efectos de la COVID-19 en la lactancia materna en Chile durante el 2020. *Revista de Ciencias Médicas de Pinar del Río*, 25(4), e5115. Epub 01 de julio de 2021. Recuperado en 04 de enero de 2023, de http://scielo.sld.cu/scielo.php?script=sci_arttext&pid=S1561-31942021000400018&lng=es&tlng=es

Maguiña Vargas, C., Gastelo Acosta, R., & Tequen Bernilla, A. (2020). El nuevo Coronavirus y la pandemia del Covid-19. *Revista Médica Herediana*, 31(2), 125-131. Disponible en: http://www.scielo.org.pe/scielo.php?pid=S1018-130X2020000200125&script=sci_arttext

Medina, C., Chavira, J., Aburto, T., Nieto, C., Contreras-Manzano, A., Segura, L., Jáuregui, A., & Barquera, S. (2021). Revisión rápida: evidencia de transmisión por Covid-19 e infecciones respiratorias agudas similares en espacios públicos abiertos. *Salud pública de México*, 63(2, Mar-Abr), 232-241. <https://doi.org/10.21149/11827>

Meneses-Falcón, C. (2022). El proyecto de investigación: La hoja de ruta de la investigación. *Miscelánea Comillas. Revista de Ciencias Humanas y Sociales*, 80(157), 429-454. <https://doi.org/10.14422/mis.v80.i157.y2022.01>

Merchan Villamar, J. A., Cedeño Cedeño, S. E., & Rayo Caicedo, K. E. (2020). Covid 19, el embarazo, el parto y la lactancia materna. *RECIAMUC*, 4(3), 58-68. [https://doi.org/10.26820/reciamuc/4.\(3\)julio.2020.58-68](https://doi.org/10.26820/reciamuc/4.(3)julio.2020.58-68)

Miranda, M., & Villasís, M. (2019). El protocolo de investigación VIII. La ética de la investigación en seres humanos. *Revista Alergia México*, 66(1), 115-22. http://www.scielo.org.mx/scielo.php?script=sci_arttext&pid=S2448-91902019000100115

Novillo-Luzuriaga, N., Robles-Amaya, J., & Calderón-Cisneros, J. (2019). Beneficios de la lactancia materna y factores asociados a la interrupción de esta práctica. *Enfermería Investiga*, 4(5), 29-35. Recuperado a partir de <https://revistas.uta.edu.ec/erevista/index.php/enfi/article/view/729>

OMS. (2020). Organización Mundial de la Salud. PREGUNTAS FRECUENTES: Lactancia materna y COVID-19 Para trabajadores de la salud. Disponible en: https://www.who.int/docs/default-source/coronaviruse/breastfeeding-covid-who-faqs-es-12may2020.pdf?sfvrsn=f1fdf92c_8

Sara Santos. (2020) Detección de SARS-CoV-2 en leche materna. (n.d.). Gob.es. Retrieved January 21, 2023, from https://www.sanidad.gob.es/biblioPublic/publicaciones/recursos_propios/resp/revista_cdrom/Suplementos/Pildoras/pildora33.htm

Sola A, Rodríguez S, Cardetti M, Dávila C. COVID-19 perinatal en América Latina [Perinatal COVID-19 in Latin America]. *Rev Panam Salud Publica*. 2020 Jul 31;44:e47. Disponible en: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7392181/>

UNICEF. ¿Lactancia materna segura durante la pandemia de COVID-19? (n.d.). Unicef.org. Retrieved January 25, 2023, from <https://www.unicef.org/lac/historias/lactancia-materna-segura-durante-la-pandemia-de-covid-19>

Verde, Carmen Villarreal, Medina, Maritza Dorila Placencia, & Sifuentes, Violeta Alicia Nolberto. (2020). Lactancia materna exclusiva y factores asociados en madres que asisten a establecimientos de salud de Lima Centro. *Revista de la Facultad de Medicina Humana*, 20(2), 287-294. Disponible en: http://www.scielo.org.pe/scielo.php?script=sci_arttext&pid=S2308-05312020000200287

Zabala, A., & Alexandra, C. (2021). Lactancia materna en hijos de madres con covid-19. ¿Riesgo o beneficio? Quito: UCE. Disponible en: <http://www.dspace.uce.edu.ec/handle/25000/24305>.

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